

Flight, April 8, 1911.

# FLIGHT

First Aero Weekly in the World

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 119. (No. 14. Vol. III.)

APRIL 8, 1911.

[Registered at the G.P.O.  
as a Newspaper.]

[Weekly, Price 1d.  
Post free, 1½d.]



SEEING THE OXFORD AND CAMBRIDGE BOAT RACE BY AEROPLANE.—The finish at Mortlake on Saturday last, with one of the flyers, which appeared upon the scene during the contest, overhead.

## AERONAUTICAL SOCIETY DEVELOPMENTS.

LAST week we called attention to the extremely unsatisfactory state in which the Aeronautical Society of Great Britain finds itself at the present time, both from the relatively unimportant point of view of finance, and also from the vital aspect of failing to maintain its proper place as the chief as well as the oldest scientific institution in the world connected with the study of human flight. Practically, as we pointed out, this Society of 45 years' standing has been dependent during the past twelve months for half its income upon the personal gift of a single patron, and yet with all that it has barely been able to make both ends meet. Also we laid particular stress on the fact that the Society, both as regards constitution and control, is virtually moribund, its first forty years of existence prior to the arrival of the era of practical flight having apparently placed it in a sufficiently deep and out-of-date groove to preclude the possibilities of its rising to the occasion now that aeroplanes are flying freely about in the air, and that achievement has taken the place of faith and of surmise.

That article was evidently particularly well timed. At any rate Friday of last week will probably prove to have been a most momentous turning-point in its destinies, for at the annual general meeting held that evening, an extremely far-reaching and unanticipated resolution was passed, while the meeting itself was adjourned without being called upon formally to accept or to reject the financial report of the year, and without receiving the results ascertained by the scrutineers of the "ballot" for the coming year's officials. It was in fact urged by several dissatisfied members at the meeting that a very complete investigation ought to be made of the affairs and prospects of the Society before anything else was attempted or any further business was done, the outward and visible evidences of this move on the part of the would-be reformers being the election then and there of a Committee of Enquiry who were deputed to proceed with their duties immediately and to bring forward their findings and recommendations at as early a date as they could. This Committee consists of Messrs. Mervyn O'Gorman, Griffith Brewer, Alec Ogilvie, Handley Page, J. H. Ledebor, A. E. Berriman, W. T. Douglass, and J. W. Dunne, most of whom are already recognised in all British aeronautical circles as thoroughly qualified and influential personages in the great movement of the day. This Committee is at least thoroughly representative of modern progress along practical as well as theoretical and scientific lines; and it speaks well for its prospects of success as a body and for the ultimate acceptance of its considered recommendations by the Society as a whole, that the resolution electing it was carried unanimously at the meeting. Quite important and highly satisfactory is it to observe that these notions of reform have been brought forward and have been received—even by the members of the old Council—without serious opposition, and in quite a friendly spirit.

Even last week, prior to any actual steps having been taken, and before it was known how far the Society themselves would welcome or would resent any reform proposals, we carefully abstained from putting forward any definite suggestions of a constructive kind for the future, and purposely spoke in general terms alone of the brilliant prospects that we believe to be before the Society if properly reconstituted in keeping with the actual needs of to-day. Now, of course, more than ever it would be unwise in any shape or form to handicap the

Committee of Enquiry by the expression of definite views bearing upon anything in the way of details. That therefore clearly is outside the intention of this second article, the principal objects of which we are now just coming to. First and foremost it ought to be made clear that every single reader of *FLIGHT* is potentially interested in the maintenance of the Aeronautical Society as a universally-respected national institution, for there is no reason why one and all who feel disposed should not belong to it in one capacity to another or should not at least benefit to some tangible extent by its existence. Hence special emphasis should be laid on the fact that now is the time for everybody who has any suggestions to make, to put himself in touch with the Society, for it may safely be said that the conclusions arrived at by the Committee of Enquiry must necessarily depend largely upon the evidence that is laid before it, and this evidence should be as comprehensive and representative as it can be made. What is therefore most needed from all readers at the moment is the recognition that one of the greatest of the national bodies to be entrusted with the future of the flight movement in this country is now in a transition state in which it can be made of greatest use to the greatest numbers, and that even though hitherto its membership may have mostly been drawn from a single class and its officials may principally have been men of one particular type of mind, precedent may now be swept aside if only all those who are helping to found the new industry on lasting lines will but come forward with their suggestions and with their aid.

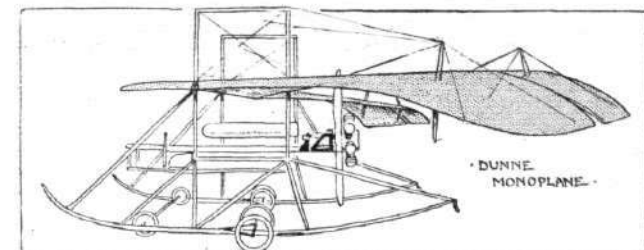
Also we would make a special appeal to all the present members of the Society. Hitherto it has been customary for the annual general meetings to be most sparsely attended, and for little, if any, display of energy to be brought into evidence. Last week saw no exception to this general rule. But when the adjourned meeting of Friday last comes to be held (or possibly some extraordinary general meeting in the interim), its probable and principal purpose will be to receive the suggestions of the Committee of Enquiry. Somewhat drastic steps are pretty sure then to be found advisable, and these will doubtless affect the constitution of the institution as well as merely its details of management and its programme of future operations. A very large majority of the membership ought therefore to be assembled in order to give effective weight to whatever is decided upon; so the very least that any member can do is to attend or be effectively represented. Possibly it is as well again to bring to the front a telling point that was enlarged upon by some of the speakers at last Friday's meeting, even though it is one solely affecting the membership, and need not in the ordinary course of events have been given greater publicity. We refer to the fact that on the score of individual financial responsibility alone every member would do well personally to ensure the future success of the Society. In other words every member—whether he realises it or not—has by virtue of his membership an unlimited degree of liability for all debts of the Society. Such is the constitution of the concern—unlike most other similar bodies—that the liability of each member is *not* restricted to the amount of his subscription. Present members cannot moreover even by immediate resignation escape the personal pecuniary responsibility of which we speak. The amount actually at stake is nothing serious as things are, but the point is one that should at least help to assure a good attendance.

## MORE AEROPLANES AT OLYMPIA.

WITH SPECIAL REFERENCE TO THE DUNNE MONOPLANE.

LAST week our principal article on the Olympia Show was illustrated in part by a series of perspective sketches, which we believe our readers will agree afforded a particularly

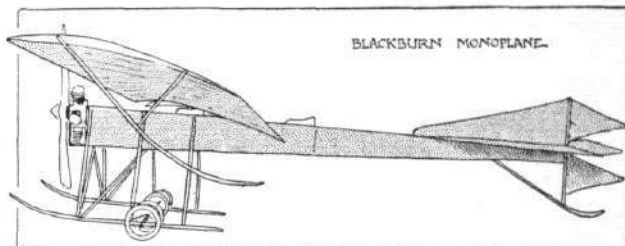
steering the machine horizontally and vertically. The principle of stability associated with the Dunne monoplane is somewhat complicated, and has to do entirely with the special formation of the wings, which are generated on the surface of a cone. This is not the place in which to go into precise details of this method, which is fully described in our article on the Dunne biplane; but it will be interesting to those familiar with that description to be told that the apex of the cone is altogether in a different place, being situated, on the monoplane, a little way behind the trailing extremity of the wing and more or less directly in line with the outside edge. This formation of the wing gives a variable angle of incidence from shoulder to tip, which, in conjunction with the V-plan form, confers on the machine the principle of the fore-and-aft dihedral angle, which is one of the accepted methods of



satisfactory method of illustrating the characteristic appearance of an aeroplane without entering into elaborate detail. This week we publish a continuation of the series herewith by illustrating the Maurice Farman and Humber biplanes, and the Blackburn, Piggott, Dunne and Nieuport monoplanes.

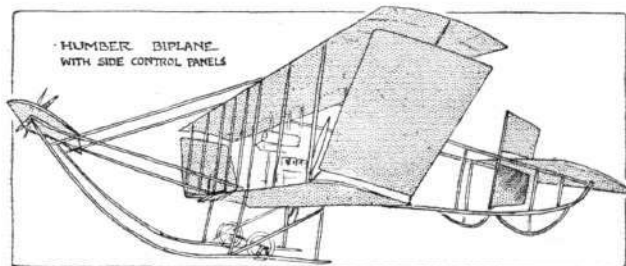
The two biplanes, as may be observed, afford rather an interesting comparison, because they both embody in their construction the characteristic Sommer type forward outrigger, in which the skids are carried up for the support of the elevator. The Humber machine is also shown with the side panels designed by A. H. Bailey for the purposes of stability and control, who also exhibited this system in the model section. The object of these panels is to confer the principle of the dihedral angle and to act partially as rudders and partially as screens, as was done on the Neale biplane which we recently described, and the details of which will be fresh in the minds of our readers. The panels, it will be observed, are attached at their lower corners by cords to the lower main plane, while a single cord attaches the centre of the upper edge of the panel to the upper main

obtaining natural stability and is a characteristic feature in the design of all successful aeroplanes. Owing to the wing extremities being situated in an exposed region and not sheltered behind the middle portion of the plane, as is more



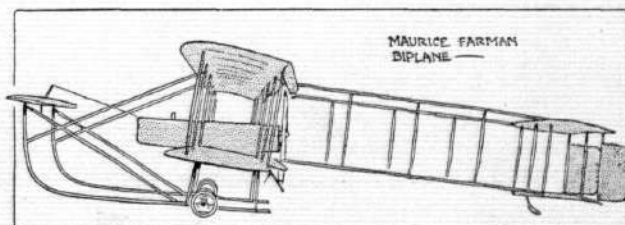
or less the case with the tail of an ordinary aeroplane, Mr. Dunne claims that their tail effect is enhanced. Also the same argument applies to the efficacy of the dihedral angle, because, owing to the formation and continuity of the wings, it is impossible to define what part constitutes main plane and what part tail. That in fact the relative functions of these members are performed by different parts of the wings in accordance with the requirements of the moment.

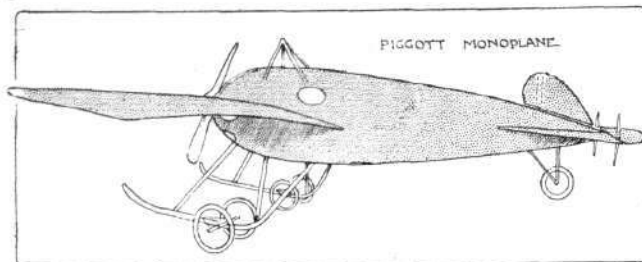
Lateral stability in the Dunne monoplane is somewhat more difficult to explain, but that which is the most significant feature in the design is unquestionably the fact that the wing formation provides down-turned wing tips as distinct from the upturned wing tips on such monoplanes as the Handley Page and Weiss, which are also designed more or less with a view to natural stability. It will be noticed, of course, that it is the leading edge of the Dunne monoplane that is turned down, whereas in the Handley Page and Weiss monoplanes it is the trailing edge that is turned up, so that the relative positions of the leading and trailing edges in all three machines are identical. On the other hand, it will be observed that there is a very material and fundamental difference in principle between the two methods, for



plane. By this means the panels can be skewed or warped into any desired position, and the control attachments are such that similar or opposite movements may be made simultaneously in the two panels, according to the effect required.

Among the monoplanes, that which will probably attract the greatest interest among our readers is the Dunne, for all will recollect what a number of interesting features the Dunne biplane, which we described some time ago, possessed. The Dunne monoplane, like its prototype biplane, is designed to possess natural stability, and is tailless in the ordinary sense of the term. In principle, however, the V-plan form of its wings gives it two tails instead of one, and the hinged flaps in the trailing extremities of the wings provide it with two elevators instead of one. These flaps are under independent control, and serve the purpose of



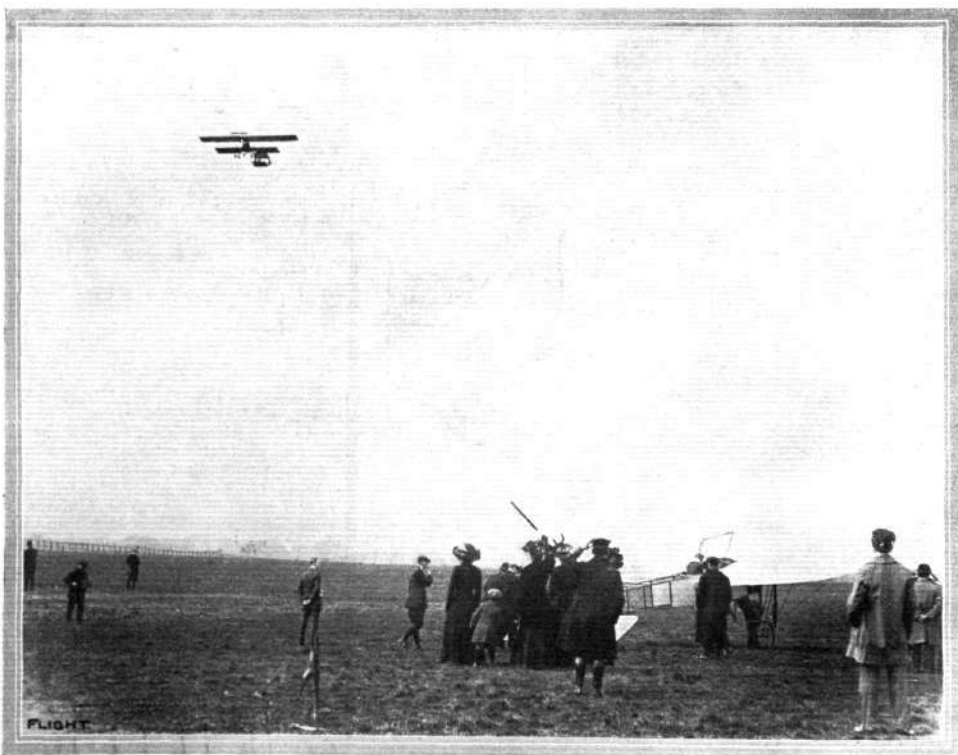
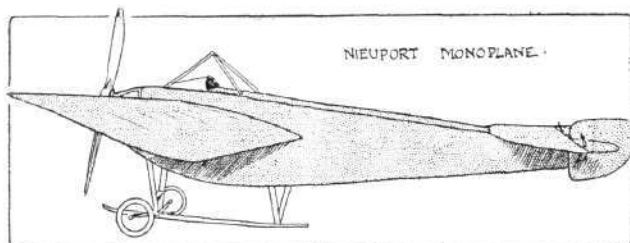


whereas in principle the upturned trailing edge represents the lateral dihedral angle, the down-turned leading edge represents the gull's wing, which is an accepted method of obtaining lateral stability in side gusts. The general action is as follows: A side gust ordinarily lifts that side of the machine against which it first strikes, because of the aeroplane action of the planes considered in their attitude towards the gust and the consequent travel of the centre of pressure towards the virtual leading edge facing the gust, which involves an actual travel of the centre of pressure laterally from the real centre of gravity of the machine. Thus the machine cants over and the upset is emphasised with the dihedral angle, because the upturned wing offers an increasing surface for normal pressure. In the gull's wing method the remoter down-turned wing tip presents

the more effective surface to the gust and tends to counteract the lift due to the travel of the centre of pressure on the remainder of the plane. It is, in principle, little more or less than this idea which was tried by the Wright Brothers in some of their early gliding experiments. Like most things of this kind, however, there is all the difference between the broad principle and the detail of carrying it into effect on a practical machine. It is the detail that makes the Dunne monoplane such an original design.

Among the other machines illustrated herewith, the Piggott monoplane is a remarkable example of the ultra-stream-line body, for in it the engine, pilot and passenger are completely enclosed. The Nieuport monoplane is an example of the surfaced frame, which may be

described as the practical stream-line body of the moment, and the Blackburn monoplane, which is an interesting British-built machine, is another example in the same category.



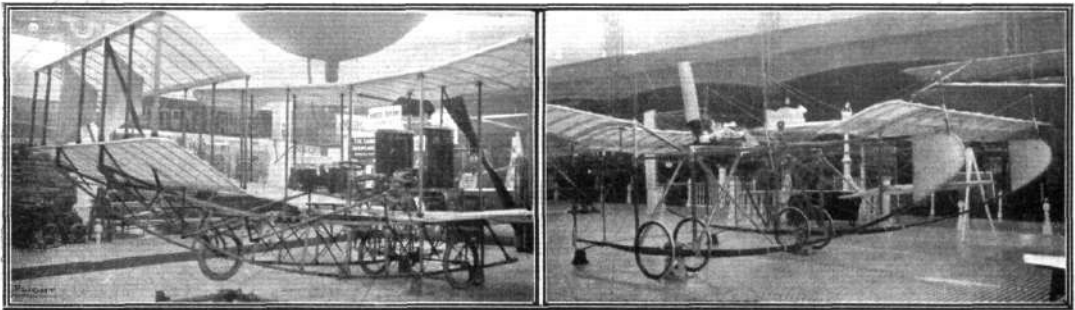
STARTING TO SEE THE OXFORD AND CAMBRIDGE BOAT RACE.—Mr. Grahame-White leaving Hendon on Saturday.



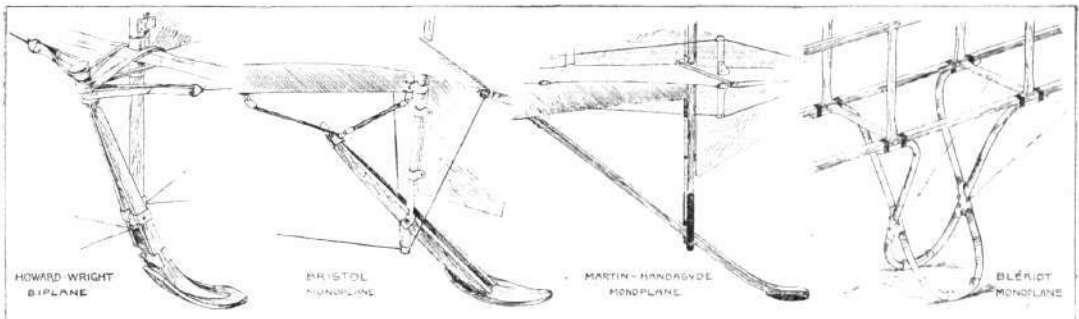
## AEROPLANE UNDER-CARRIAGES AT OLYMPIA.

No better example of the manner in which practical considerations relating to matters of an entirely extraneous character often affect the direct solution of theoretical problems could easily be found than may be observed in the influence of the under-carriage on the evolution of the flying machine. It is true, of course, that aeroplanes must always alight on *terra firma* sooner or later, but the ability to do so gracefully and harmlessly might at first have been far more

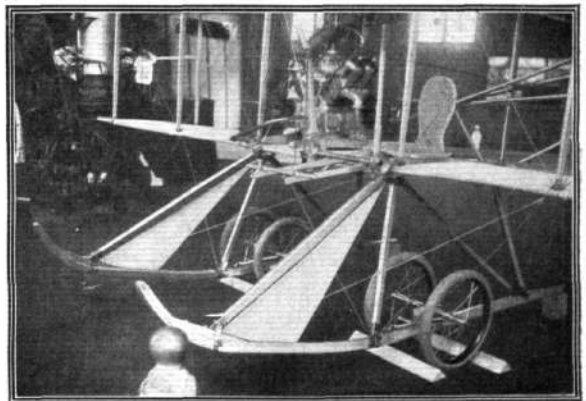
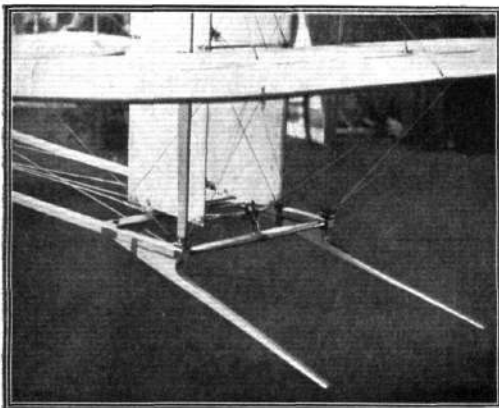
conveniently deferred to a later date had it been possible to do so, in those days when the ability of a machine to fly at all was the main question of importance. However, nowadays the marked success of passenger-carrying vehicles of the air, and the rapidly increasing evidences of a more or less immediate definite utility in aerial navigation, demand the fitting of perfected landing arrangements, and the time and care bestowed upon the design of the under-carriage no



UNDER-CARRIAGES AT OLYMPIA.—The Sanders and Valkyrie varieties of the girder skid.



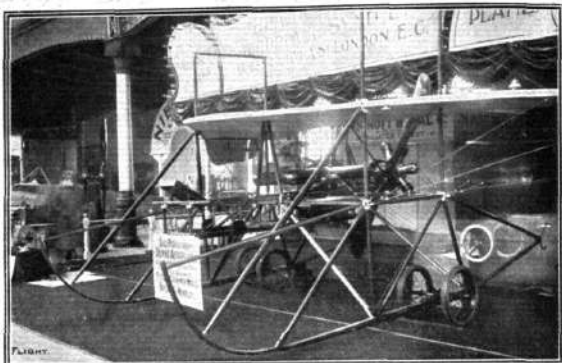
UNDER-CARRIAGES AT OLYMPIA.—A comparison in tail skid construction.



UNDER-CARRIAGES AT OLYMPIA.—The tail skids and the wheels and front skids of the Wright Baby.

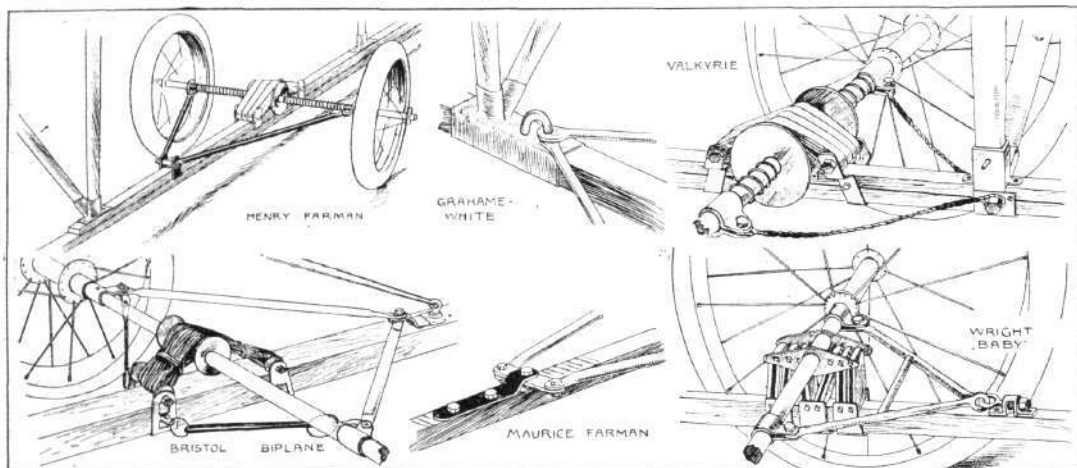
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longer seems out of place. From the very beginning, however, necessity forced this same purely mechanical problem on the attention of those who sought to fly. The inventor might have ideas galore, but before he could test the least of them it was always necessary to come down to earth in order to undertake the practical design of some suitable supporting member capable of preserving a machine during its all too protracted peregrinations on the ground. All kinds of different schemes have been tried at one time or another. Sir Hiram Maxim built a railway for his immense aeroplane of 1893. Langley built launching ways over the waters of the Potomac for his double tandem monoplane, which might well have been the first machine to fly in America. Lilienthal and the early pioneers of gliding carried their machines under their arms so that they might use their own legs for starting and alighting. The Wright Brothers who, having adopted the prone position on their gliders, used to have their machines carried by assistants for the purpose of launching, subsequently improvised a single starting rail when they developed their power-driven flyer. All special devices such as these served their purpose for the time being, and to the extent that they were used they were justified by the facility that they afforded the experimenters to get ahead on the real purpose of their undertaking, which was to learn something about the dynamic navigation of the air. It was always obvious that so soon as the practice of the art of flying should attain to any measure of popularity

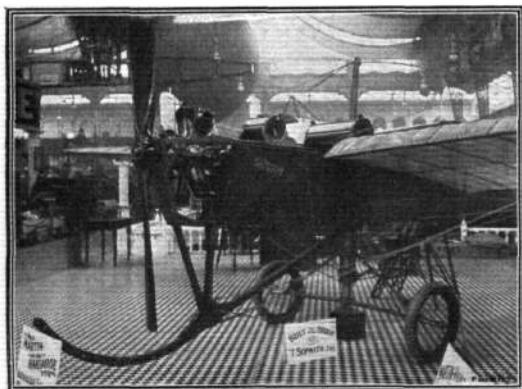


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UNDER-CARRIAGES AT OLYMPIA.—The Dunne.

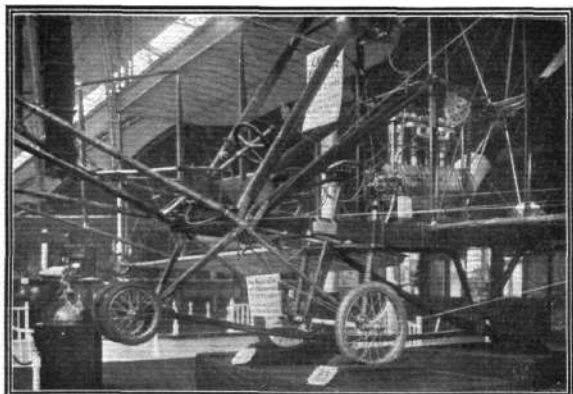
that the aeroplane of that day would have to be a self-contained machine capable of safely rising from and alighting on the ground by means of its own under-carriage.



UNDER-CARRIAGES AT OLYMPIA.—Comparative details in the construction of the Farman type wheel and skid combination.



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UNDER-CARRIAGES AT OLYMPIA.—The Martin-Handasyde axle and forward skid.



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UNDER-CARRIAGES AT OLYMPIA.—The Cody.

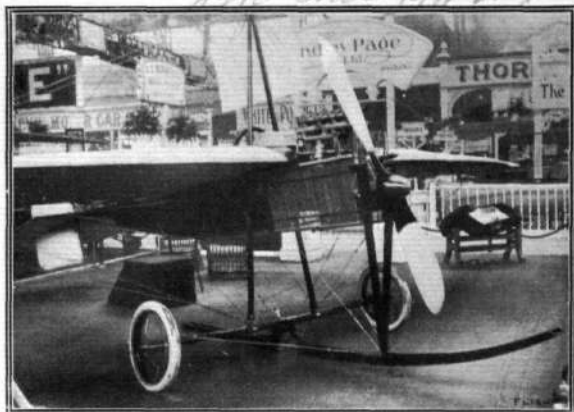


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UNDER-CARRIAGES AT OLYMPIA.—The Breguet mechanism.

Considering the nature of early aerodromes and the conditions of the ground on which pilots must at all times be prepared to bring down their machines, it is really remarkable how satisfactory the simple and somewhat crude designs have proved to be. Nothing could well be less complicated than the conventional Farman type of wheel and skid combination that has been popular for over a twelvemonth. Examples of it at Olympia may be seen on the Bristol biplane, Grahame-White biplane, Howard Wright biplane, Baby Wright biplane and Dunne monoplane. Each of these machines has, except possibly for minor details, the conventional form of this type of under-carriage, from the two strong ash skids placed well apart to give a wide base of support and trussed by vertical and oblique struts with wire bracing to the main spars of the lower plane. Each skid carries a short steel axle on the extremities of which are mounted two wire-spoked pneumatic shod wheels. The axles are lashed at their centres to the skid by an elastic strap, which forms the sole flexible suspension in the system. If these elastic springs break the machine settles down on the skids proper, but so long as the elastic holds the weight

is carried by the wheels. Under the tail plane is a small skid to protect the tail plane from coming in contact with the ground. It is a minor and comparatively insignificant structural feature, but a study of its details often reveals



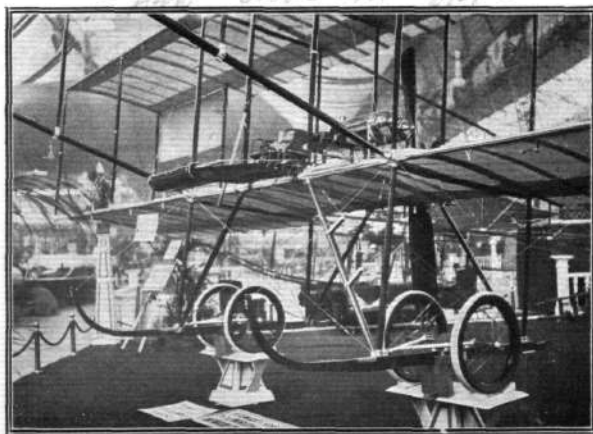
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UNDER-CARRIAGES AT OLYMPIA.—The Handley Page "A" frame.

many points of interest. In respect to the mounting of the axles to the skids on the Farman type under-carriage, the design generally only varies in minor details, for all the examples include, in addition to the main elastic springs, a pair of steel tubular radius-rods that tie the extremities of the axle to the skids so as to prevent it from slewing, and some form of lateral spring to keep the skid more or less under the centre of the axle. On the genuine Farman these springs are of the steel helical type and surround the axle. On the Bristol biplane elastic strips are used to tie the extremities of the axle to the skid instead.

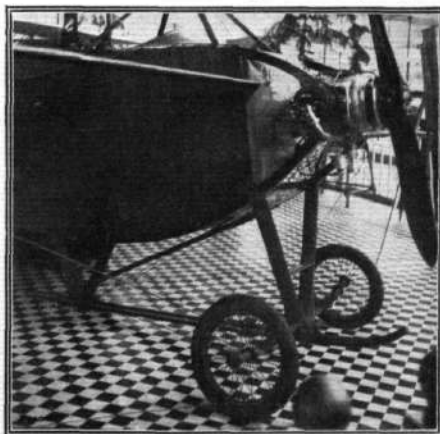
A similar arrangement carried out in a particularly neat manner is employed on the Howard Wright biplane, where can be seen an excellent example of the accepted method of attaching the supporting brackets for the main elastic springs. In most cases the tubular radius-rods are fastened to the skids by a bolt passing through the angle plate, but on the Grahame-White under-carriage this bolt is replaced by a U staple.

The Valkyrie monoplane, which has the Farman type wheels and axles on an under-carriage of entirely original



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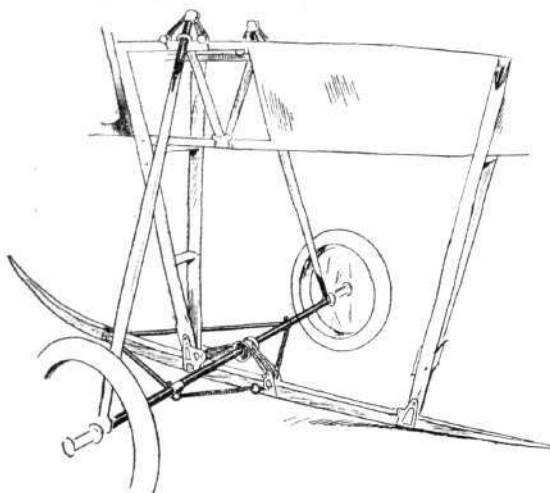
UNDER-CARRIAGES AT OLYMPIA.—The typical Farman-Wright type as built by Howard Wright.



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UNDER-CARRIAGES AT OLYMPIA.—The Nieuport inverted "A" frame.

design, illustrates an example of the steel helical lateral spring and is further interesting on account of the use of stranded steel cables in place of rigid tubular steel radius-rods. On the Baby Wright biplane the elastic spring differs from the ordinary type, for here the axle carries a bracket fitted with parallel bolts, three on either side of the axle, and each bolt carries a separate broad elastic band that is anchored to the corresponding member on the skid. The radius-rods on

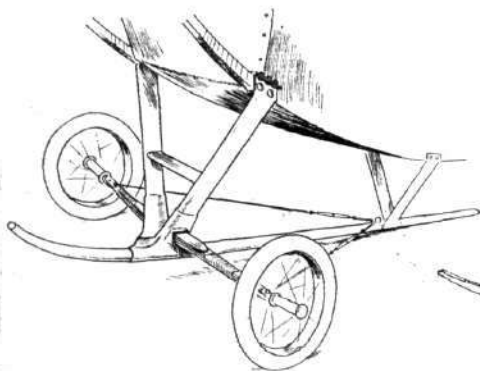


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**UNDER-CARRIAGES AT OLYMPIA.**—The Bristol monoplaner showing the crutches.

this very neatly constructed carriage, too, are brazed together so as to form a rigid A-shaped member, the apex of which is flexibly attached to the skid by an eye-bolt.

In all machines mentioned the skids themselves are fairly short with more or less upturned extremities projecting a matter of, perhaps, 3 ft. in front of the main planes. On

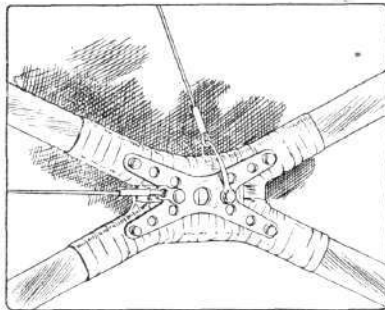


**UNDER-CARRIAGES AT OLYMPIA.**—A comparison of the Nieuport laminated steel spring axle and the Handley Page flexible wooden axle.

the Maurice Farman aeroplane the under-carriage is distinguished from the Henry Farman by the continuation of the skid members as far as the elevator outrigger, on the lines originally introduced by Sommer. The Humber biplane is another example of this form of construction, but in this particular machine the skid extensions form separate pieces fastened in place by bolts to the skids proper, whereas on the Maurice Farman the skid is continuous. This Maurice Farman carriage is also particularly interesting on account

of the joining in the outrigger framework of which the skid forms a part.

The other outstanding examples of this principle of carrying the skids right forward to the elevator are to be found in the Valkyrie and the Sanders aeroplanes, the former being an altogether distinctive type of under-carriage due to the peculiar nature of the machine itself. It is interesting, however, to compare the Valkyrie with the Sanders, in which the principal members of the under-carriage consist of two very strong girder type skids braced by wood struts and diagonal steel tape. In the Sanders biplane the under-carriage is distinctly

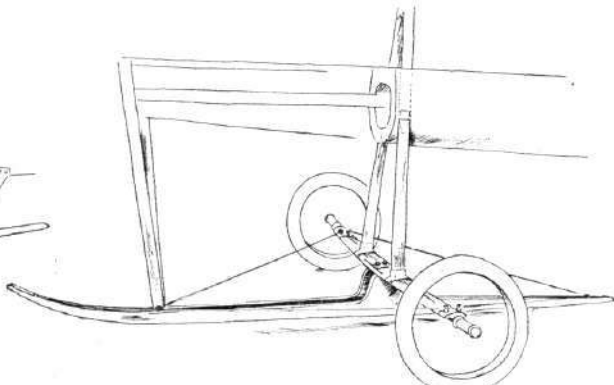


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**UNDER-CARRIAGES AT OLYMPIA.**—A cross-joint on the Maurice Farman outrigger.

a self-contained unit, whereas in the Valkyrie, where the same general principle is in use, the carriage seems to be so much more an incorporated part of the machine as a whole. It is not easy to suggest an alternative method by which the Valkyrie machine could be put together without a carriage of its present form, and this, after all, is some indication of a homogeneous design.

In all machines thus far compared the under-carriage has been characterised by the presence of two skids and four wheels, but among monoplanes it is uncommon to find more than a single axle, in conjunction with a central skid. An excellent example of this form of construction may be observed in the Handley Page monoplane, which has a central skid



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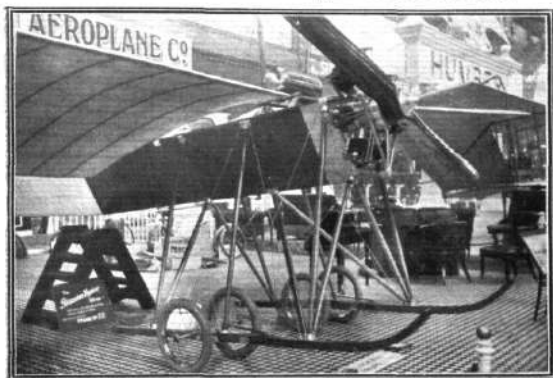
of channel section timber and a very long axle also of timber, the flexibility of which constitutes the suspension. Above the axle rise two masts forming an A-type frame for the support of the fish-like body, and it may be observed that this frame is continued right through the body to form a mast for the bracing of the wings. In the Bristol monoplaner, which is likewise characterised by a central skid and single axle, the body is supported by a pair of inverted A type frames, the apices of which rest upon the skid. On this



machine, however, the axle is not so long and elastic suspension is employed as a means of attaching the axle to the skid. On the Handley Page monoplane these two members are rigidly connected. Another feature of the Bristol monoplane is the use of two long crutches to form struts between the extremities of the axle and the upper beams of the body,

which extend from the axle to the main frame, and when the machine is in flight the thrust of these springs is transferred from the axle extremities to the diagonal wires that brace the forward main spar in the lower plane.

The most elaborate looking carriage of all is that on the Breguet biplane, which really constitutes a three-wheeled

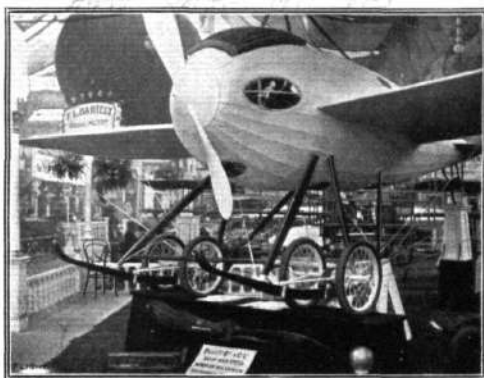


UNDER-CARRIAGES AT OLYMPIA.—The multiple "A" frame of the Blackburn monoplane.

to which they are attached by elastic shoulder straps. Another interesting comparison with both the above-mentioned carriages is afforded by the Nieuport, which is similar in principle to the Bristol, in so far as the body is attached to the skid by two inverted A type frames, but differs from both the Bristol and the Handley Page, in having a tubular steel skid and an axle that is formed by a laminated steel spring. In the flexibility of this spring the axle is obviously similar in principle to that on the Handley Page.

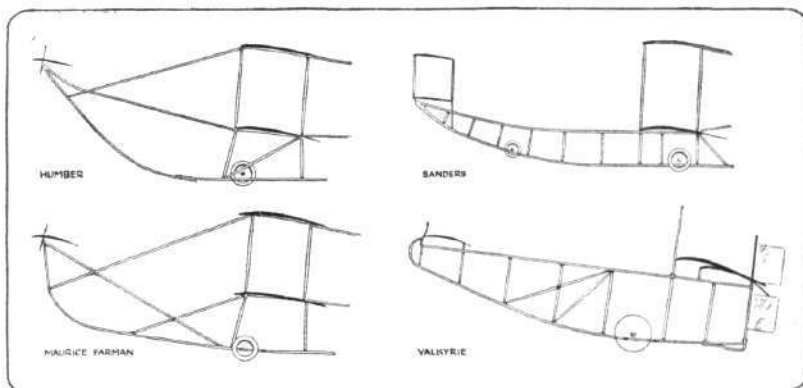
Yet another variation in the central skid category is the class that is formed by machines like the Antoinette, in which the axle and skid are entirely independent structures, the skid taking the form of a projecting foot under the fore part of the machine only. An example of this system as introduced on the Antoinette is to be seen on the Martin-Handasyde monoplane, where, however, the suspension of the axle itself embodies many original details. In this machine the weight is carried on four elastic springs that are grouped round the central tubular steel column situated vertically beneath the body. On this column slides a cross-head, to which the springs and diagonal struts of the axle are anchored, and a corresponding cross-head at the base of the column forms the point of attachment of the inner ends of the divided axle itself. A modification of the original Antoinette combination is represented by the Kny aeroplane, in which the foot-like skid is hinged to the axle; but this particular carriage is, properly speaking, in a category by itself, because the axle is rigidly trussed to the body, and the wheels are mounted, too, on the axle by radius brackets fastened by coil springs. A massive wooden foot is attached to the body by a telescopic strut fitted with a helical spring buffer.

The Cody biplane also belongs to the central skid type of carriage. In this machine the axle is unusually short and guard wheels are fitted to the extremities of the lower main planes on that account. The suspension on this machine is effected by two very large and very long helical steel springs,



UNDER-CARRIAGES AT OLYMPIA.—The Piggott.

under-carriage, on which the machine is entirely supported, for there is no protective skid under the tail. Two of these wheels, all of which are of very small diameter, are mounted on the extremities of a rigid axle that is attached to the body by two telescopic struts fitted with helical spring buffers and oil dashpots. This axle also carries two short skids projecting forwards, and the front ends of these, which are normally quite clear of the ground, are fastened to the same point of the body by rigid tubular steel struts. Between the base of these latter struts is another tubular steel axle forming part of a horizontal triangular frame, at the forward apex of which is a wooden foot. The foot is hinged to the frame, and a rearward extension thereof carries the third wheel of the set of three on which the machine is mounted. This



"Flight" Copyright.

UNDER-CARRIAGES AT OLYMPIA.—A comparison of some girder skids.

wheel occupies a position in the centre of the afore-mentioned triangular framework, and being interconnected with the steering mechanism may be moved anywhere within the space thus defined. The forward apex of the frame is, like the main axle, attached to the body by a telescopic strut.

A machine that stands in a class apart, so far as its carriage is concerned, is the Blériot, which has been little altered except in the matter of refinement since it was initially designed. In this machine the carriage is primarily a rectangular frame formed by top and bottom flat beams separated by two vertical struts, and carrying between the extremities

two vertical tubular steel columns. The body rests on the top beam, while the lower beam forms the base of the structure and the point of attachment for the steel tapes that truss the wings. Attached to the steel columns are hinged triangular brackets that support the wheels, the hubs of which are tied together by an ash strut and braced diagonally to the base of the carriage by wires anchored to rubber

springs. This latter construction is for the purpose of keeping the wheels in line with the direction of motion. Additional struts rise from the base of the carriage to assist in the support of the engine frame, which is situated in front of the body, and also for the support of the body at a point further to the rear, but on this machine there is no skid of any description other than the simple little bamboo cross beneath the tail.

## MODELS AT OLYMPIA.

THE Royal Aero Club, in conjunction with the Automobile Association and Motor Union, have awarded the following prizes in connection with the model exhibition at Olympia. Our own illustrated article on this section of the Olympia Show will appear next week.

*For night capacity as demonstrated by actual trial.*—First Prize:—£4 4s. to W. H. Sayers for the Ding-Sayers model biplane No. 49.

Second Prize:—£3 3s. to M. Gordon Jones for the model biplane No. 35.

*For good workmanship.*—First Prize:—£4 4s. to G. P. Bragg Smith for the model biplane No. 50.

Second Prizes of £2 2s. to each of the following competitors: W. Birkinger for the scale model Blériot No. 6; G. T. R. Hill for the model biplane No. 31; W. J. and H. E. Startin for the model Antoinette type monoplane No. 52.

Special Prize of £3 3s. to H. Burge Webb for the working model whirling-table.

It will be observed that no awards were made for originality in design.

### Aeroplane "Registration" in India.

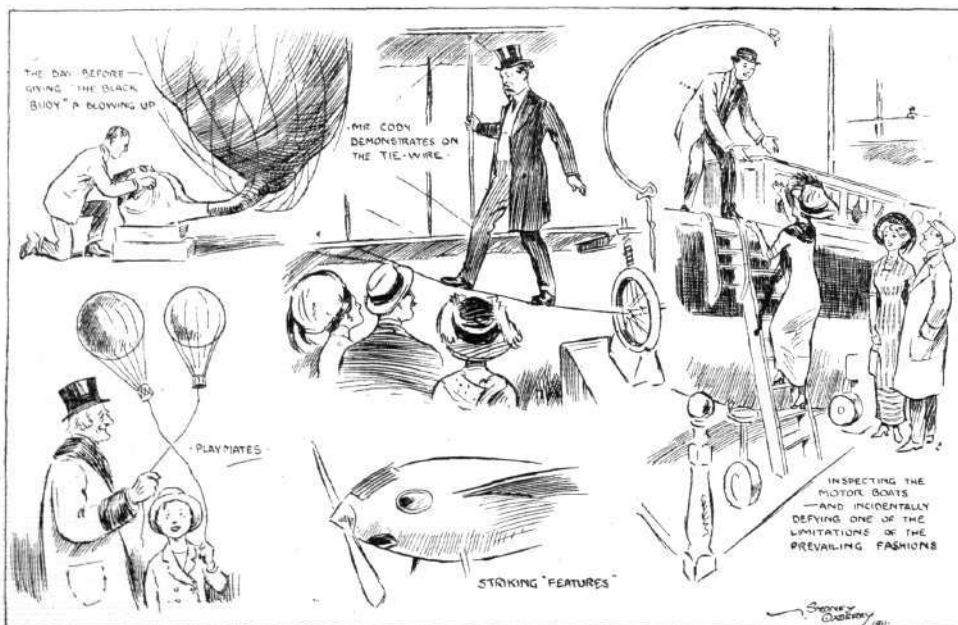
THAT the authorities in India appreciate the possibilities of aeroplanes is very evident, from a notice recently issued in Bombay stating that the Government of India have under consideration the question of introducing legislation on the subject of aeroplanes. The lines on which such legislation will proceed are not yet determined but it is probable that some restrictions will be imposed on the acquisition of flying machines in British India. In the meantime the Government of India desire to place no obstacle in the way of purchase by native chiefs and other respectable persons of flying machines in reasonable quantities. All that they require at present is that particulars of such transactions should be reported to them so that there may be a record of the number and class of the flying machines existing in India. It will be the duty of the Commissioner of Police in the Presidency town, of District Magistrates in the Mofussil, and of Political Agents in Native States to report such purchases to the Government of Bombay for communication to the Government of India.

The points upon which information will be required are: (1) The name and residence of the purchaser; and (2) A

description of the machine, the name of its manufacturer, its carrying capacity, &c.

### Splendid Military Aviation in Germany.

THE German military authorities are taking an increased interest in the subject of aviation, and remarkable enthusiasm prevails in connection with the success of the cross-country flight made by Lieuts. Erler and Mackenthum last week. Leaving Doebritz on a German-built biplane of the Farman type on Tuesday of last week, they created a new record for Germany by flying to Hamburg, a distance of 149 miles, in 3½ hours, making two stops en route. The full-wing day they continued their journey to Bremen, which was reached in an hour and a quarter. Very little progress was possible on the two following days owing to head winds, and Thursday saw the aviators weatherbound at Verden, while on Friday they got to Hanover. On Saturday the journey was resumed, and Brunswick was reached safely, while on Sunday the two officers got back to Doebritz, having had to stop at Miessenhorst and Stendal, staying at the last-mentioned place for just on seven hours. The aeroplane was fitted with a double set of controls, so that in the event of anything happening to the pilot his companion could take charge, while it is recorded that the officers during their 400-mile trip found their way by means of a compass and chart.



The "Lighter than Air" side at Olympia.

## SEEING THE BOAT-RACE BY AEROPLANE.

Those who are inclined to indulge in prophesying will have a care in the future with regard to flying. When last year several venturesome spirits dared, in more or less jesting mood, to suggest that it might be possible to view the Boat-race from an aeroplane, they had little idea that twelve months from then no less than seven people would view the historic contest between the Light and Dark Blues from the region of the clouds. On Saturday last the great crowds which lined the river banks between Putney and Mortlake had

monoplanes—had all started from Hendon and struck the river at Kew. From thence they followed its course to Ranelagh, there descending. Mr. Graham-Gilmour on a Bristol type biplane made his start from Brooklands, and he reached the river a few minutes before the crews got way from Putney. Several times he circled above Hammersmith Bridge, and when the crews were on their way to Mortlake he flew above them. In the meantime Mr. Gilmour more than once executed a short *vol plané*, and this manoeuvre was each



The Grahame-White-Blériot contingent who flew from Hendon on Saturday last and witnessed the Oxford and Cambridge Boat-Race from their aeroplanes, just before their start. From left to right: Mr. Paterson, the Liverpool aviator, who accompanied Mr. Grahame-White as passenger, Messrs. Prier, C. H. Greswell, Claude Grahame-White, Hubert, and G. Hamel.

plenty to interest them during the period of waiting. Some time before the rival crews were due to pass there was that movement in the crowd which tells that something is happening, and the experienced ear caught the sound of the open exhaust of a Gnome motor which heralded the rapid approach of a flying machine. Out of the mist they suddenly appeared, not one but six of them, three monoplanes and three biplanes. Five of the flyers—Mr. C. Grahame-White, accompanied by Mr. C. C. Paterson on a Farman, M. Hubert also on a Farman and Mr. G. Hamel, Mr. C. H. Greswell and M. Prier on Blériot

time watched with breathless excitement by the crowds. After flying over the finishing point Mr. Gilmour ran out of petrol and landed in a field. A friendly motorist supplied him with four gallons, and after a little instruction from the pilot a man from the crowd started the engine, while a few more hung on in approved fashion and enabled the re-start to be made. At the conclusion of the race Mr. Grahame-White, Mr. Greswell and M. Prier took the air again back to Hendon, while Mr. Hamel and Mr. Hubert first went on to Brooklands before returning to Hendon, which they reached soon after six p.m.



### Paris-Rome-Turin Race.

ALTOGETHER a sum of £16,000 has been offered in connection with the aeroplane race which is being organised from Paris to Turin via Rome. This prize money is divided into four sections: £4,000 offered by *Le Petit Journal* will be devoted to the section between Paris and Nice; £4,000 offered by the Executive Committee at Rome will be awarded in connection with the stage from Nice to Rome via Livourne; £4,000 offered by the Fêtes Committee at Rome will be given in prizes in a competition over five rounds of a 60 kilom. circuit; while of the remaining £4,000 subscribed by Turin half will be given for a cross-country flight from Rome, and the other half will be devoted to a circuit race at Turin.



### The European Circuit.

FEELING that the proposal to run an aerial race round Europe entailed difficulties altogether outside the actual mechanical flying, we refrained from dealing at any great length with the original proposal. That this attitude was justified is shown by the fact that the organisers have decided to abandon the scheme as first proposed. Instead, a competition is to be organised, in which those taking part will leave Paris on June 18th and fly by way of Liège, Utrecht and Brussels to London and back to Paris, a distance of about 1,000 miles. The modified itinerary has been approved by the Federation Aéronautique Internationale.

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## Annual General Meeting.

A FULL report of the Annual General Meeting of the Club, held on Thursday, March 30th, 1911, appears on page 316.

The result of the ballot for the nine places on the Committee was declared, and the following is the Executive Committee for 1911:—

Griffith Brewer.	E. Manville.
Ernest C. Bucknall.	J. T. C. Moore-Brabazon.
Col. J. E. Capper, C.B., R.E.	Alec Ogilvie.
Capt. Bertram Dickson.	Mervyn O'Gorman.
John Dunville.	C. F. Pollock.
Col. H. C. L. Holden, R.A., F.R.S.	Sir Charles D. Rose, Bart., M.P.
Prof. A. K. Huntington.	A. Mortimer Singer.
V. Ker-Seymer.	Hon. A. Stanley, M.P.
F. K. McClean.	R. W. Wallace, K.C.

## Committee Meeting.

A meeting of the Committee was held on Tuesday, the 4th inst., when there were present:—Mr. R. W. Wallace, K.C., in the chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Col. J. E. Capper, C.B., R.E., Col. H. C. L. Holden, R.A., F.R.S., Prof. A. K. Huntington, Mr. V. Ker-Seymer, Mr. J. T. C. Moore-Brabazon, Mr. Alec Ogilvie, Mr. C. F. Pollock, Sir Charles D. Rose, Bart., M.P., and Harold E. Perrin, Secretary.

**Election of Chairman.**—Mr. Roger W. Wallace, K.C., was unanimously elected Chairman for the current year.

**Election of Members.**—The following new members were elected:—Sidney a'Court, Samuel Nevill Dale, Wilfrid Herbert Dolphin, Eric Cecil Gordon-England, and H. P. Martin.

**Honorary Treasurer.**—Mr. Ernest C. Bucknall was unanimously re-elected Honorary Treasurer.

**Sub-Committees.**—The appointment of sub-committees for the year was deferred.

**Aviator's Certificate.**—The following certificate was granted:—

66. Lewis William F. Turner.

This is the first certificate obtained in England under the new regulations.

## Gordon-Bennett Aviation Cup.

The date for the contest has now been fixed for Saturday, July 1st, 1911.

The following countries have entered for the Gordon-Bennett Aviation Cup:—

America.	France.	Great Britain.
Austria.	Germany.	

Each country will be represented by three competitors.

In order to give as much time as possible, the Royal Aero Club has extended the date of entry for the British competitors to May 1st, 1911. Intending competitors are requested to notify the Secretary of the Royal Aero Club on or before that date, of their willingness to compete, if chosen. Entries must be accompanied by a remittance of £20, which amount will be returned should the entrant not be selected.

## Library.

Mr. A. W. Isenthal has kindly presented to the Rolls Memorial Library a copy of his translation of "Birdflight as the Basis of Aviation," by Otto Lilienthal.

## The Manville £500 Prize.

(Under the Rules of the Royal Aero Club and the Fédération Aéronautique Internationale.)

Mr. E. Manville has presented to the Royal Aero Club of the United Kingdom a sum of £500 for competition by British aviators on an all-British aeroplane, under the following conditions:—

1. The winner to be the aviator who, on an aeroplane, accompanied by a passenger (combined net weight to be not less than 20 stones) remains the longest aggregate time in the air, valued in accordance with the scale attached. The flights must be made on nine specified dates.

2. The flight must be confined to the British Isles, and may be made at any flying ground previously approved by the Club for this purpose.

3. The prize will be open for competition between the hours of 10 a.m. and 5.30 p.m., on the following nine dates:—

Monday	... April 17th	Saturday	... June 24th
Saturday	... May 6th	Saturday	... July 15th
Saturday	... May 20th	Monday	... August 7th
Monday	... June 5th	Wednesday	... October 4th
Saturday	... June 17th		

and in order to qualify for the prize the competitor must have remained in a continuous flight with his passenger for at least 15 minutes on at least half the days on which any competitor shall have made a recorded flight in this competition.

4. No flight of less than 15 minutes will be taken into account, and the amount credited to each competitor on account of each continuous flight will be in accordance with the scale attached to these regulations. Completed minutes only will count.

5. The competitor must obtain certificates, each of which must be signed by the official timekeeper, or by another timekeeper who shall have been approved for this specific purpose by the Royal Aero Club, stating the exact duration of each flight. Certificates must be posted to the Secretary, Royal Aero Club, 166, Piccadilly, London, W., within three days of the date of the flights.

6. The entrant, who must be the person operating the machine, must be a British subject flying on a British-made aeroplane, must hold an aviator's certificate, and be duly entered on the Competitors' Register of the Royal Aero Club.

7. The complete machine and all its parts must have been entirely constructed within the confines of the British Empire, but this provision shall not be held to apply to raw material.

8. Entries must be made in writing to the Secretary, Royal Aero Club, 166, Piccadilly, London, W., and must be accompanied by an entrance fee of £1. The competitor must make his own arrangements with regard to timekeepers, whose names must be sent in to the Royal Aero Club 48 hours prior to the attempt.

9. Should any questions arise at any time after the date of entry as to whether a competitor has properly fulfilled the above conditions, or should any other question arise in relation to them, the decision of the Committee of the Royal Aero Club shall be final and without appeal.

10. A competitor by entering waives any right of action against the Royal Aero Club or Mr. E. Manville for any damages sustained by him in consequence of any act or omission on the part of the officials of the Royal Aero Club or Mr. E. Manville, or their representatives or servants, or any fellow competitor.

11. The aeroplane shall at all times be at the risk in all respects of the competitor, who shall be deemed by entry to agree to waive all claim for injury either to himself or his aeroplane, or his employees or workmen, and to assume all liability for damage to third parties or their property, and to indemnify the Royal Aero Club and Mr. E. Manville in respect thereof.

12. The Committee of the Royal Aero Club reserves itself the right to add to, amend or omit, any of these rules should it think fit.

*Scale, in accordance with which the time in the air is valued.*

Minutes.	Allow- ance.	Minutes.	Allow- ance.	Minutes.	Allow- ance.	Minutes.	Allow- ance.
15	17	37	45	59	74	81	103
16	19	38	46	60	75	82	104
17	20	39	48	61	76	83	106
18	21	40	49	62	78	84	107
19	22	41	50	63	79	85	108
20	24	42	52	64	80	86	110
21	25	43	53	65	82	87	111
22	26	44	54	66	83	88	112
23	27	45	56	67	84	89	114
24	29	46	57	68	86	90	115
25	30	47	58	69	87	91	116
26	31	48	59	70	88	92	118
27	32	49	61	71	90	93	119
28	34	50	62	72	91	94	120
29	35	51	64	73	92	95	122
30	36	52	65	74	94	96	123
31	37	53	66	75	95	97	124
32	39	54	68	76	96	98	126
33	40	55	69	77	98	99	127
34	41	56	70	78	99	100	128
35	43	57	72	79	100	101	130
36	44	58	73	80	102	102	131



103	132	144	180	185	246	226	304	267	363	291	398	315	432	338	466
104	134	145	191	186	248	227	306	268	364	292	399	316	434	339	467
105	135	146	192	187	249	228	307	269	366	293	401	317	435	340	469
106	136	147	193	188	251	229	309	270	367	294	402	318	437	341	470
107	138	148	195	189	252	230	310	271	369	295	404	319	438	342	471
108	139	149	196	190	253	231	311	272	370	296	405	320	439	343	473
109	141	150	197	191	255	232	313	273	372	297	406	321	441	344	474
110	142	151	199	192	256	233	314	274	373	298	408	322	442	345	476
111	144	152	200	193	258	234	315	275	375	299	409	323	444	346	477
112	145	153	201	194	259	235	317	276	376	300	411	324	445	347	479
113	147	154	203	195	261	236	319	277	377	301	412	325	447	348	480
114	148	155	204	196	262	237	320	278	379	302	413	326	448	349	482
115	150	156	205	197	264	238	322	279	380	303	415	327	450	350	483
116	151	157	207	198	265	239	323	280	382	304	416	328	451	351	485
117	153	158	208	199	266	240	325	281	383	305	418	329	453	352	486
118	154	159	210	200	268	241	326	282	385	306	419	330	454	353	488
119	156	160	212	201	269	242	327	283	386	307	421	331	455	354	489
120	157	161	213	202	270	243	329	284	388	308	422	332	457	355	490
121	159	162	214	203	272	244	330	285	389	309	424	333	458	356	492
122	160	163	216	204	273	245	331	286	391	310	425	334	460	357	493
123	161	164	217	205	274	246	333	287	392	311	426	335	461	358	495
124	162	165	219	206	276	247	334	288	393	312	428	336	463	359	496
125	163	166	220	207	277	248	335	289	395	313	429	337	464	360	498
126	164	167	221	208	278	249	337	290	396	314	431				
127	166	168	223	209	280	250	339								
128	167	169	224	210	281	251	340								
129	169	170	225	211	283	252	341								
130	170	171	227	212	284	253	343								
131	171	172	228	213	286	254	344								
132	173	173	229	214	287	255	346								
133	174	174	231	215	289	256	348								
134	175	175	232	216	290	257	349								
135	177	176	233	217	292	258	350								
136	178	177	235	218	293	259	352								
137	179	178	236	219	295	260	353								
138	181	179	238	220	296	261	354								
139	182	180	240	221	298	262	356								
140	184	181	241	222	299	263	357								
141	185	182	242	223	300	264	359								
142	187	183	244	224	302	265	360								
143	188	184	245	225	303	266	362								

### Model Exhibit at Olympia.

Organised by the Royal Aero Club of the United Kingdom, Assisted by the Automobile Association and Motor Union.

#### AWARD OF JUDGES.

Judges.—Royal Aero Club: A. E. Berriman, Col. J. E. Capper, Col. H. C. L. Holden. Aviation Section A.A. and M.U.: C. G. Grey, Major J. N. C. Kennedy, P. A. Sharman.

Flight Capacity.—1st prize, W. H. Sayers, £4 4s. 2nd prize, M. Gordon Jones, £3 3s.

Workmanship.—1st prize, G. P. Bragg Smith, £4 4s. 2nd prizes (bracketed as equal), W. Birking, £2 2s.; G. T. R. Hill, £2 2s.; W. J. and H. E. Startin, £2 2s.

Special Prize.—For whirling table. H. Burge Webb, £3 3s.

HAROLD E. PERRIN.

166, Piccadilly.

Secretary.

## PROGRESS OF FLIGHT ABOUT THE COUNTRY.

NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.

### Birmingham Aero Club (165, HAMFORD STREET).

MR. C. GRAHAME-WHITE has consented to back the efforts of the club in rousing up more interest in aviation in the Midlands by opening the Second Annual Exhibition at Bournville on April 17th. His appearance in Birmingham will give the citizens their first opportunity of welcoming him and showing their appreciation of his ability and pluck.

For the benefit of those interested in aviation, and who reside in districts where there are no clubs, this club has now made arrangements to admit associate members at the small annual subscription of half-a-crown. The principal advantage of this section will be that they will be assisted by correspondence, &c.

Those interested in aviation in the district should realise that by coming into the club now they will have every opportunity of learning gliding and flying this summer. Good money prizes are to be competed for at the annual exhibition in the spring, and all these competitions are free to members. Moreover those who put off joining until the next quarter when the club has moved into their new premises and erected the hangar for the aeroplane and gliders may now be warned that it is the intention of the committee to very considerably raise the nomination fee for new members.

### Conisborough and District Model Ae. Soc. (18, CHURCH ST.).

THE March competition has been won by F. J. Wright with a flight of 353 ft. On Saturday last flying took place for the April competition, the longest flight being 279 ft. by R. J. Troughton.

A model aviation meeting will be held on Easter Monday, and the events are for longest flight open to all, with 1st, 2nd, and 3rd prizes, and also longest flight, members only, open to those who so far have not won any prizes. Flying on Easter Monday will not count for the April competition.

### Clapham Aero Club.

THE Clapham Aero Club held a highly successful competition on Clapham Common last Saturday afternoon, the prize being awarded to the competitor whose model exhibited the best all-round qualities. Marks were given for duration, distance, steering, and stability. The competition resulted as follows:—1st, Reginald

Harris, "Hirondelleplane No. 3": 2nd, Mr. Coomber, triplane; 3rd, Mr. Diplock, Valkyrie. The up-turned tips of the main plane gave the "Hirondelleplane" great stability, whilst it was swift, and the landings after several long flights were very gentle, considering this machine weighed 8 ozs. The flight of the triplane, a beautifully finished model, was exceedingly fast and steady, and after accomplishing the distance contest, it glided gracefully to earth. Mr. Diplock had the misfortune to break the elevator of his nicely made Valkyrie; this, however, was replaced by the main plane of another model which had come to grief early in the afternoon. Notwithstanding this improvised but necessary repair, the Valkyrie proved itself a wonderfully steady and speedy flyer. Any information respecting the club can be had on application to the hon. sec., Mr. Dollittle, 140, Manor Street, or to the assistant sec., Reginald Harris, 34, North Side, Clapham Common, S.W.

### East London Aero Club (ALEXANDRA HOTEL, STRATFORD, E.).

THE secretary wishes to impress upon readers in this district the advantage to be derived by joining this club. Excellent facilities are offered—workshop, library, and the lectures, while the fees are exceedingly moderate. Full particulars and prospectus will be sent to anyone interested upon application to the hon. sec., Mr. E. Sissons, at above address.

### Scottish Ae.S. Model Aero Club (144, BERKELEY ST., GLASGOW).

A DISTANCE competition under the auspices of the above club was held on Saturday last at Victoria Park, Whiteinch. A good turn out of members entered for the medal, which was won by Mr. F. S. Gordon with a flight of 265 ft., Mr. Jas. Donaldson coming next with 230 ft. Some fine flights were witnessed with both models, and when they are tuned up to fly straight they should easily do the same figures in yards instead of feet. With the advent of better weather the interest in flying has increased considerably, and another competition for duration will be held on Saturday, April 15th. A silver cup will be put up for competition for the model that remains the longest time in the air. The meeting will take place at Ibrox, at 3.30, on the above date, and is open to all. Entry fee 6d. All particulars from Mr. R. M. Glenesk, 200, North Street, Glasgow.

## ROYAL AERO CLUB GENERAL MEETING.

THE annual general meeting of the Royal Aero Club was held at the club premises, 166, Piccadilly, on Thursday, March 30th. There was a very large attendance.

The Chairman, Mr. Roger Wallace, K.C., in reviewing the financial position for the past year, pointed out that although the income of the Club was not very large, yet it had handled very considerable sums of money. He then referred to the great losses which the Club had sustained in the deaths of the Hon. C. S. Rolls, Mr. Cecil S. Grace, and of an earnest worker on behalf of the Club, although not much before the public, Mr. J. Lyons Sampson. He went on to mention the generosity of Mr. F. K. McClean, who during his absence abroad had placed his aeroplanes at the disposal of the Navy, and of Mr. G. B. Cockburn, who was instructing the officers in that connection.

He also stated that the Army was looking more closely into aviation than it had done, though possibly the War Office still thought that those who were endeavouring to further the movement were doing something for which there was no need.

The various meetings held at Wolverhampton, Bournemouth, Blackpool, Lanark and Dublin were attended with great success. The total amount of prize-money offered during the year which it had fallen to the Club to look after was £42,000, while probably another £20,000 was spent in carrying out the work.

The best thanks of the Club were due to the *Daily Mail*, Baron de Forest, the Michelin Tyre Company, Mr. James Gordon-Bennett and Sir Marcus Samuel for their contributions, which had proved such a stimulus to British aviators and manufacturers. In addition to the English meetings, Capt. Dickson, Mr. A. Rawlinson and the late Hon. C. S. Rolls competed very successfully abroad, while Mr. C. Grahame-White, Mr. Alec Ogilvie and Mr. J. Radley have worthily upheld the prestige of the Royal Aero Club in the United States.

In the competition for the Gordon-Bennett Trophy it was pleasing to note that two of the three aviators who completed the course were representatives of the Royal Aero Club, i.e., Mr. C. Grahame-White and Mr. Alec Ogilvie.

As regards balloon voyages, the most noteworthy events were the crossing of the Irish Sea from Ireland to England by Mr. John Dunville and his crossing of the English Channel from England to France, and the voyage of the Hon. Mrs. Assheton-Harbord, who crossed from England to La Chartres, thereby winning the Long Distance Balloon Cup.

Thanks to the generosity of the Society of Motor Manufacturers and Traders, the International Aero Exhibition was again held at

Olympia last year; it was pleasing to note that the expenses of the Exhibition were nearly covered, and it is hoped that the expenses of this year's Exhibition will be more than covered.

Referring to the protest of Mr. C. Grahame-White against the Statue of Liberty award, the Chairman remarked that the Club was prosecuting the case on behalf of Mr. C. Grahame-White, and although no definite decision had as yet been arrived at, it was to be hoped that the case would be finally settled in favour of this country.

One of the most pleasing features of the past year was the progress made by British manufacturers, more especially the manufacturers of the Bristol, Cody, Dunne, Humber, Martin-Handasyde, Mulliner, Roe, Short, Valkyrie, and Howard Wright machines, while the year had also witnessed the development of some really efficient all-British engines.

As regards future events, the following prizes were open for competition during 1911:—

Gordon-Bennett Aviation Cup.

*Daily Mail* Second £10,000 Prize.

The European Aviation Circuit, with about £20,000 in prizes.

A. Mortimer Singer Army and Navy Aviation Prizes, £1,000.

E. Manville, President, Society of Motor Manufacturers and Traders, £500 prize for endurance.

British Empire Michelin, £500.

In addition to the £500 prize for distance which was generally given by the Michelin Company, they had come forward with an additional prize which commenced this year with a sum of £400, increasing to £600 in 1912 and £800 in 1913.

The re-election of President, Vice-President and the Council was proposed by Mr. Esme Gordon Lennox and unanimously passed.

The result of the ballot for the nine vacancies on the Committee for 1911 was announced, and on the proposition of the Chairman, seconded by Prof. Huntington, the following new rule was unanimously confirmed:—

"The subscription for life membership shall be twenty-five guineas for members elected as ordinary members prior to January 17th, 1911, and thirty guineas for members elected after that date."

Capt. C. J. Burke suggested that the Committee should pass some regulation with regard to aviators not possessing certificates taking up passengers, and the Chairman promised to bring the matter before the Committee.

A vote of thanks to the Committee for their services during the past year concluded the business of the meeting.

## BRITISH ARMY AEROPLANES.

FORTUNATELY the friends of progress have been able to make their voices heard in Parliament during the past week, for not only was a useful question asked by Mr. Lionel de Rothschild of the Under-Secretary of State for War, but the Parliamentary Aerial Defence Committee held an important meeting at which it was decided to ask Lord Haldane and Mr. McKenna to receive deputations from them. Mr. Rothschild's question was directed to show how absurdly small a number of aeroplanes have been acquired by the British War Office, in comparison with the numbers possessed by the other leading European governments. Similarly it was made abundantly clear by Mr. Arthur Du Cros, M.P., the well-known Hon. Secretary to the Parliamentary Committee, that the military equipment as

regards flying machines sadly needs immediate augmentation, and that delay constitutes a totally unnecessary national risk. Supported by Mr. Arthur Lee and by Mr. Grahame-White, who had been invited to attend, he maintained that the contemplated expenditure on aeroplanes was absurdly small in comparison with that on dirigibles, that at least 50 aeroplanes ought to be obtained without a moment's delay, and that it was even a more vital necessity still that a minimum of a hundred officers should be trained at once as expert military airmen.

Organisation and machines were, in fact, most essential, and the official attitude of complacency could no longer be reasonably maintained.

M. Georges Besançon; *Treasurer*: Count Castillon de St. Victor.

### The Atlantic Voyage Postponed.

IN order to allow of trials being carried out with the airship "Suchard," Herr Brucker has postponed the proposed voyage across the Atlantic till the autumn. In view of the proposal to adopt the system of sprinkling the envelope with water to counteract the effect of the sun's rays, it is felt that the apparatus should be thoroughly tested before starting, so as to give the expedition a reasonable chance of accomplishing its object.

### Trials of "Parseval V."

ON the 2nd inst. the dirigible "Parseval V" left Bitterfeld at twenty minutes to ten, and at a quarter to one arrived at Halberstadt, where a descent was made. Owing to considerable leakage of gas from the balloon it was decided to completely deflate the airship, which was then packed up and returned to headquarters by train. On the previous day the dirigible successfully sailed from Bitterfeld to Wittenberg and back.

### To Popularise Aviation in France.

WITH a view to impressing the populace of France with the great importance of aviation from a national point of view, the Committee on Aviation in the French Parliament has decided to approach the various aviation societies throughout the country with the object of organising lectures and demonstrations of flying. Municipal authorities are also to be invited to assist in the organisation of centres for landing and supply stations, while the Government are to be asked to support this work.

### Ae.C.F. Officers for 1911.

At the meeting of the Aero Club of France held on the 22nd ult., the following were elected officers for 1911:—*President*: M. L. P. Caillaud; *Vice-Presidents*: Count de la Vaulx, M. Jacques Balsan and M. Deutsch de la Meurthe; *Members of Committee*: MM. Rene Grodier, Louis Blériot, Henry Menier, Paul Tissandier, Alfred Leblanc; *Secretary*:

## FROM THE BRITISH FLYING GROUNDS.

## Brooklands Aerodrome.

Mr. Low, on Thursday last week, was busy instructing pupils on the Bristol, whilst Capt. Massey and Mr. Blackburn did some rolling and made a few hops on the pupils' machine but found the wind troublesome as it was their first solo attempt. Capt. Massey at length found the sewage farm, breaking the tail slightly. In the afternoon Mr. Fisher was out on the Hanriot making straight flights and partial turns.

Lieut. Snowden-Smith brought out the new racing type Farman biplane, built by M. Blondeau under licence, and covered several laps, Mr. Astley making a solo flight on "Big Bat."

Mr. Pixton was up on the Avio biplane for a circuit and then handed it over to Lieut. Boothby, R.N., who made several straight flights, but eventually came to grief owing to one wheel falling into a large rabbit hole on landing, thereby pulling away the undercarriage and lower plane.

M. Tetard, who has taken up his quarters here at the Bristol School, was out on the military type Bristol, after which Mr. Knight was at work with the same machine, landing with a fine *vol plané*.

M. Tetard was out on the military Bristol on Friday morning, and Mr. Fisher on the Hanriot made a number of flights, including three quarters of a right-hand circuit. In the afternoon Lieut. Snowden-Smith made a fine cross-country flight on the old Farman of Blondeau's, taking a passenger with him, later carrying Mrs. Hewitt for a long trip on the new racer, rising five or six hundred feet. M. Tetard was also making long flights over the country on the military Bristol.

In the morning of April 1st Tetard was flying the military Bristol, and at about 2 p.m. Mr. Gilmour started off on the same machine to see the Oxford and Cambridge Boat-race. After following the race by tacking backwards and forwards over the river he landed on the Chiswick Polytechnic Cricket Ground to replenish his petrol. At 4 p.m. a Blériot monoplane was sighted high over the test-hill, which proved to be Mr. Hamel, who had flown from Hendon to Ranelagh also to see the race, and then made his trip on to Brooklands for tea. Almost immediately afterwards a Farman, piloted by Mr. Hubert, also from Hendon, hove in sight; and not long after Hubert had landed Mr. Gilmour returned, flying from the direction of the river.

Mr. Hubert started back for Hendon about 4.40 p.m., followed soon after by Mr. Hamel. Meanwhile M. Tetard had set out for a long cross-country trip carrying Mr. Fleming-Williams as passenger, the latter making a number of sketches during the flight. Mr. Astley was passenger carrying on "Big Bat." Mr. Macfie flew for several circuits on his biplane and later Mr. Valentine took a turn on the same machine.

Lieut. Snowden-Smith was busy on the Blondeau school Farman passenger carrying, and Mr. Pixton made some straight flights on the new Avio biplane for the first time.

## Laffan's Plain.

THE only flying of the week of any importance was accomplished last Thursday, when Mr. de Havilland made one of his best flights, covering about 7 miles in ten minutes at a height of about 90 ft.

Capt. Burke experienced another unfortunate accident. Running along the ground after an excellent passenger flight, the machine passed over a slight rise in the ground, which caused the left hand skid to break. The propeller struck the ground and was smashed to pieces, while the left side of the plane was also greatly damaged. Capt. Burke was in no way to blame for the accident, but there would appear to be some weak point in either construction or the repair methods for so much damage to be done under so slight an incident.

## London Aerodrome, Collindale Avenue, Hendon.

Blériot School.—Notwithstanding the violent wind on Tuesday last week, Mr. Prier took out one of the 50-h.p. Gnome-Blériot single seaters, and flew for about ten minutes with the object of testing a new propeller. Wednesday was again too windy, but on Thursday afternoon Mr. Prier was up for some time on one of the 50-h.p. Blériots flying outside the aerodrome, whilst Messrs. Henderson and Salmes were able to get a little practice, the former flying three times round the aerodrome, the latter making straight flights.

Friday saw a good deal of work in progress at the school. At 9 a.m. three Blériot school machines were out in the field and the helm was taken in turns by different pupils present. Messrs. Henderson and Champion were flying round the aerodrome at heights varying from 10 to 80 feet; Mr. Salmes was showing great improvement in his straight flights, and Mr. Bell, a new pupil, had his first practical lesson on the machine, his efforts in driving it along a straight path being fairly successful.

Saturday was again boisterous, so no school work can be recorded. However, to the delight of the great crowd of visitors at the Aerodrome, Mr. Prier and Mr. Hamel, together with Messrs. Grahame-White, Greswell, and Hubert, flew over to the Boat-race, as recorded elsewhere.

Monday, Tuesday, and Wednesday this week were blank days, owing to the wind and snowy weather. Two new Blériot passenger monoplanes, one the 70-h.p. Gnome machine exhibited at Olympia, and one of the new 50-h.p., have arrived at the School at Hendon, and will be seen in flight whenever the weather permits.

Grahame-White School.—In spite of a fairly brisk wind of about 13 miles an hour on Tuesday last week, the pupils Turner and Ridley-Prentice were out doing good flying on the school Gnome-Farman, each making several circuits and remaining up for about a quarter of an hour. Hubert also was busy throughout the day making solo flights and flying with passengers on the new military Farman.

Wednesday being very windy no machines made an appearance. The wind was still persistent on the following day, but it had subsided sufficiently to allow Messrs. Ridley-Prentice and Turner to put in some good practice on the school "bus." After having each flown for about seven circuits Hubert went up on the same machine for the purpose of indulging in some fancy flying, and during a very interesting flight of ten laps carried out the usual evolutions of quick turns and *vol piqués*. An exciting feature of the day's flying was an impromptu race between Prier and Clement Greswell, both on Gnome-Blériots. It was quite thrilling to see them speeding round the aerodrome, wing to wing, Prier eventually drawing away and getting home with a lead of about two "fuselages."

Turner was out before nine o'clock on the school Farman practising the right hand turn on Friday. During a flight of half-an-hour's duration he made six consecutive figures of eight over the regulation course. On his descent a loose cylinder was discovered in the motor so the machine retired into "dock" pending the fitting of a brand-new Gnome. Hubert had meanwhile started on the military Farman for a short flight over the neighbouring country, and on his return gave up his seat to Mr. Grahame-White, who set off with a lady passenger in the direction of Mill Hill. Passing over the village at a good height he steered to the left and made for Edgware, and on his return to the aerodrome after a quarter of an hour's absence planned to earth. The fitting of the new Gnome



Mr. Turner, one of the pupils at the Grahame-White School, and the first Englishman to obtain his pilot's certificate under the new regulations, having passed the necessary tests on Saturday last.

engine to the school machine was completed by five o'clock and Ridley-Prentice took the machine out for a flight of five circuits, eventually landing *en vol plané*.

Saturday was a day of big doings for the Grahame-White School, as in addition to excitement and enthusiasm caused by the appearance of all the school instructors on their various machines over the University Boat-race course, they had the satisfaction of seeing their pupil Lewis Turner qualify for his pilot-aviator's certificate, he being the first Englishman to win his "brevet" since the more stringent tests were imposed on the 15th of February last. Hubert was the first to fly in the morning, he taking the school Farman round the aerodrome for several laps by way of a test preparatory to starting for Putney. At about 1.30 Mr. Grahame-White, with Mr. Compton Paterson as passenger, on the military Farman, Hubert on the school machine, and Clement Greswell, Prier and Gustav Hamel on Gnome-Blériots, set off towards the Boat-race course.

Striking the river at Kew they followed it to Putney, where they continued to carry out evolutions over the starting point of the classic race. After seeing the two crews start they descended, one after another, on the polo ground at the Ranelagh Club. Re-starting after a brief rest, Mr. Grahame-White (with his passenger), Prier, and Greswell returned in company to the London Aerodrome at Hendon, while Hamel and Hubert flew over to pay a call at Brooklands. On their way they noticed a biplane, which afterwards proved to be Graham-Gilmour apparently *en panne* near Mortlake, but Gilmour had only descended to replenish his petrol tank. Flying due south they struck the London and South-Western main line, and followed it to the Brooklands course. Tea being partaken of, they mounted their machines and started their homeward flight to Hendon, which was reached safely and without incident.

On Hubert's arrival, Lewis Turner mounted the machine and, in the approaching dusk and freshening wind, made his two test flights. He first made a series of five figures of eight over the regulation course, and in order that no doubt should exist about the matter he made a further series of five more, then mounted to at least 300 ft. On landing he was the subject of hearty congratulations. Ridley-Prentice, who has made nearly as rapid, and certainly as consistent, progress as his fellow pupil, Turner, made the closing flight of the day by remaining up for 20 mins. at an average height of 100 ft. on the school Farman. The writer is confident that it will not be long before he has the pleasure of chronicling another brevet won at the Grahame-White School.

**Valkyrie School.**—"Valkyrie VII," the latest "type A" machine, piloted by the School instructor, on Wednesday last week was flying, and made numerous circuits of the aerodrome in very good style and

finished the day by rendering first aid to Mr. and Mrs. Martin, who had a mishap upon a Grahame-White "Baby" machine. The Valkyrie machine was flying near by when the Grahame-White machine turned upside down, and for a time matters looked serious. The Valkyrie pilot immediately flew to the hangars and back to the scene of the accident with medical supplies.

The School machine was out on Friday very early in the morning, and indulged in a considerable amount of flying. Mr. Chambers had a lesson, and made great progress. In the afternoon passenger flights were given to Mr. Dmitry Alexandroff, representing the Russian War Office, Mr. Maasdorp, and Mr. Valentine. The Syndicate's pilot then gave an excellent solo demonstration at a height of about 300 ft., making several circuits of the aerodrome, and finishing with a *vol plané* descent. Mr. Valentine then took a Valkyrie machine in hand for the first time. It was understood that at first he would attempt merely a short, straight flight, but finding the machine very easy to handle, he immediately rose to a height of 200 ft., covered two circuits of the aerodrome, and then cutting off his engine, made a perfect gliding descent. This is probably somewhat in the nature of a record.

## Midland Aero Club Grounds, Dunstall Park.

Mr. WILLOWS inflated his balloon at the Knowles Oxygen Works on Friday, March 31st, after waiting over six or seven days for a north-east gale to subside. The work of getting 42,000 ft. of hydrogen into the balloon occupied an hour and a half. He made a first-rate ascent out of a rather difficult position for a dirigible balloon, and it was only his method of movable propellers that permitted him to get away on Saturday afternoon.

On Saturday afternoon, at two o'clock, he started from his hangar at the Midland Aero Club grounds for flying over Birmingham. He got away very well and made excellent progress against what was at times a strong breeze.

Half way between Wallsall and Great Barr one of his feed pipes came adrift, and he decided to make a descent and put this right before getting over Birmingham. The descent was accomplished neatly in a field alongside the road, so that his mechanic and Mr. Gilbert Dennison, who were piloting him, could render assistance. Upon ascending again Mr. Willows made straight for Mr. Dennison's house at Handsworth Wood, and after circling there twice he went on to Birmingham, where he circled above the Council House and Town Hall a couple of times. A very big crowd had assembled in the square in front of the Council House, and they gave the aeronaut a fine reception. Mr. Willows afterwards flew back *via* Handsworth Wood to Dunstall Park, the journey of 15 miles being accomplished in just over 35 minutes.

In the evening Mr. Willows took up singly three passengers, and



**THE WILLOWS AIRSHIP.**—Amongst the trips now being made in the country by Mr. Willows with his airship was a very successful voyage to Birmingham and back from Wolverhampton on Saturday last. Our photograph shows the airship after its return, the principal figures in the centre being Mr. Dennison, Secretary of the Midland Aero Club, Mr. Willows, Mr. Leo E. Harris (Steward), Mr. Knowles, of Knowles' Oxygen Co., Captain Cook, Mrs. Willows, Mrs. Dennison, and Mrs. Cook.

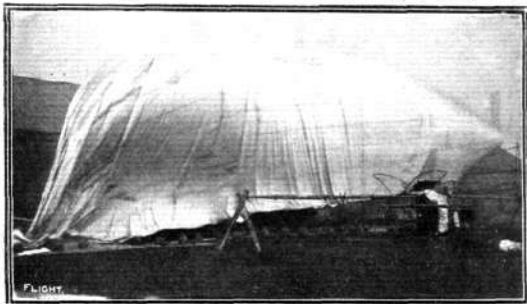


each time gave a fine exhibition of his skill in handling the machine, and amply demonstrated the wonderful control obtained by his system of propellers.

Sunday morning was wet and cold, but the afternoon turned out a little better, and at about 3.30 Mr. Willows ascended with a load of three people, carrying, as passengers, Mrs. Willows and Mrs. Gilbert Dennison. He made a flight of some twenty minutes or so over and around the club grounds; later he took up Mr. Dennison as passenger, and made a remarkable descent, landing with practically no assistance of any description and without the slightest jar.

On Monday there was sufficient wind to blow off part of the hangar, and flying was out of the question, and a similar state of affairs prevailed on Tuesday.

Mr. Willows has been extremely unfortunate in experiencing a series of strong north-east winds, frequently rising to gales. No



Inflating the Willows airship with hydrogen at the Knowles Oxygen Co.'s works at Wolverhampton. 42,000 feet of hydrogen were used, the inflating occupying 1½ hours.

trouble of any description has been experienced either to the balloon or mechanism; and his engine, a 35-h.p. J.A.P., runs excellently.

Mr. Willows' average altitude during his flight to Birmingham was 600 feet, but at times he reached 900, although he intentionally kept at a low altitude to interest the thousands of people who lined the road he followed.

During their stay in the Midlands, Mr. and Mrs. Willows are the guests of Mr. Gilbert Dennison.

Lieut. Seddon has been exceedingly busy getting ready for another trial run, and hopes to be out in the course of the next few days.

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## FRENCH MILITARY FLYING.

### From Pau to Paris.

AFTER waiting for some considerable time, Capt. Bellenger and Lieut. De Rose and Malherbe set out from Pau on the 31st ult. to fly to Paris. After a voyage of two hours and three-quarters, Lieut. Rose landed at Libourne followed about four minutes later by Capt. Bellenger and Lieut. Malherbe. In landing, Lieut. Rose damaged one of the wheels of his machine and so was delayed, but the two other officers set off again a few minutes after ten. Capt. Bellenger's next stop was at Chateauroux where he arrived soon after two o'clock. Lieut. Malherbe was obliged to descend about 40 kilometres from there, at Chasseneuil, having run out of petrol. His choice of landing place was not a happy one, and the machine crashed into a tree, considerably damaging the machine. Lieut. De Rose arrived at Chateauroux in the twilight about twenty past six. The re-start for Paris was made soon after 8 o'clock on Saturday morning, Capt. Bellenger arriving at Vincennes at a quarter past two, being followed half an hour later by Lieut. De Rose. Throughout the long journey the officers had a very trying time owing to the deluge of rain, and that they were able to complete the journey in spite of these difficulties testifies once more to the extraordinary efficiency of the aeroplane of to-day.

### Aerial Reconnoitring.

A REMARKABLE little test of the efficiency of the French Army Air Corps was carried out on Wednesday evening of last week in connection with the manoeuvres held between Rheims and Chalons. General Goiran sent a note to Lieut. Hauteville, in command of the aviators at Chalons, that he would require four flyers for scouting purposes. Within a few minutes of receipt of the order Lieuts. Fequant, Vigne, Mailfert, and Yence were detailed for the service, and commenced tuning-up their machines. The manoeuvres started at 3 o'clock in the morning, and at 7 o'clock the aeroplanes were sent up by the opposing forces, and in each case the observation

### Salisbury Plain.

ALTHOUGH on Wednesday of last week the weather was not particularly suitable for flying, M. Tabuteau brought out the Bristol biplane fitted with extensions, and the wind dropping a little he kept up for 2 hrs. 10 mins., ending the trip by a very fine *vol plané*. Was it cold? Well, on landing it was seen that Tabuteau's carburettor was covered with ice. On the following day the Bristol were out almost continuously, M. Tabuteau being in charge of the No. 19 machine and M. Versepu the No. 12, the latter making a continuous flight of an hour round the plain. In the afternoon Mr. H. M. Maitland made two trips on the E.N.V. engine machine, and in the second, while at a height of 100 ft., he tried a right-hand turn for the first time, but when half-way round the engine failed, and the machine came to the ground suddenly. It was considerably damaged, and Mr. Maitland had both his legs broken. He was attended at once by Dr. Marsh, of Amesbury, who set both limbs, and the latest reports state that the patient is making as good progress as can be expected. Mr. Maitland is recognised as a very plucky flyer, and all here join in wishing him a speedy recovery. On Friday morning the weather was almost ideal, and after half an hour's trial flight, M. Tabuteau carried a couple of officers from the Cavalry School, Netheravon, for trips around Stonehenge. He was out again in the afternoon flying around the Downs, and at half-past four he set out to fly to the British and Colonial Aeroplane Co.'s works at Filton, Bristol. Unfortunately he was compelled to descend four miles from his destination, owing to one of the valves sticking on his 70-h.p. Gnome engine. A 50-h.p. Gnome was, however, sent from the works, and after having exchanged with the faulty engine Tabuteau was able to finish his journey in perfect form. On Friday afternoon Versepu, who is making splendid progress and is now more at home on a biplane, was flying around the Camp. On Saturday M. Tabuteau arrived from Bristol about half-past three, and taking his place on the No. 12 Bristol biplane spent some time in giving instruction to pupils. Mr. Maitland during the day was removed from his hotel at Amesbury to a nursing home in London. M. Tabuteau and M. Versepu were busy on Sunday morning instructing the pupils and in the afternoon some surprise was occasioned by the arrival of M. Tetard, who had flown on his Bristol biplane from Brooklands. He reported that the fog was very thick and he had several times lost his way. He had managed to reach Salisbury soon after lunch time, however, by the novel expedient of descending at several points and taking up as passenger guides men familiar with the country. When he landed the weather was very rough and raining hard so that the trip was an exceptionally meritorious one. On Monday and Tuesday the gusty winds and snow-storms put out of the question any sort of flying.

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officers carried were able to return with complete and valuable reports to their commanders as to the position of the enemy's troops. Altogether these scouts were engaged for about five hours.

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### PARIS TO POITIERS AND BACK AT 90 M.P.H.

THE Morane monoplane has demonstrated its remarkable speed qualities on several occasions recently, but one of the most extraordinary performances was that just made by Vedrines in an attempt to fly from Paris to Pau. Leaving Issy at half-past six on the morning of the 28th ult. he flew straight through to Poitiers without a stop, landing there at thirty-five minutes past nine, having accomplished the journey of 335 kiloms. at a speed of 109 k.p.h. A large crowd of people assembled on the Chauviniere Grounds to witness the landing, and in order to avoid running into them Vedrines had to land somewhat awkwardly, damaging the chassis of his machine and also the propeller. On the following day the bad weather precluded any flying, and as the conditions had not greatly improved on the 30th, Vedrines determined to fly back to Paris and make a fresh start. On the evening of the 30th he made a flight at a height of 1,500 metres above Poitiers, while on the following day he flew back to Paris, when the remarkable speed attained during the outward trip was excelled, the time for the 335 kiloms. being returned at 2 hrs. 12 mins., giving a speed of 150.9 k.p.h. In this case the aviator was assisted by a following wind, but in spite of this the speed attained by this combination of Morane monoplane with Gnome engine and Chauviere propeller is little short of marvellous. On Sunday morning M. Vedrines left Issy on a second attempt to fly to Pau. Having lost his bearings somewhat owing to the thick fog he landed at Varennes-sur-Allier, 341 kiloms. from Paris. He then determined to go on to Bussieres, where his wife and children were staying. His flying time for the 500 kiloms. was 3 hrs. 56 mins., and he proposed completing the journey to Pau on the 3rd.

# BRITISH NOTES OF THE WEEK.

## "Recent Progress in Aeronautics."

At the Institution of Electrical Engineers, Victoria Embankment, on Tuesday next at 7.30 p.m., in connection with the Junior Institution of Engineers, Major B. Baden-Powell will lecture on "Recent Progress in Aeronautics."

## Blackpool Aerodrome.

UNDER the title of the Clifton Park (Blackpool) Racecourse Syndicate, Ltd., a company has been registered, with a capital of £75,000, in £1 shares, to carry on the business of a racecourse company for horse-racing, and to acquire the club known as the Lancashire Sports Club, carried on by the Lancashire Aero Club (Limited). The first directors are Sir Peter C. Walker and Mr. A. H. Walker.

## A Busy Week-end for Bristols.

LAST week-end was conspicuous for three very fine performances, made on Bristol military biplanes, all of which are dealt with at some length elsewhere. On Friday M. Maurice Tabureau flew from Salisbury Plain to Bristol; on Saturday Mr. Graham-Gilmour flew from Brooklands and carried out some remarkable evolutions over the Boat-race course; while on Sunday M. Tetard flew from Brooklands to Salisbury Plain. These three performances, all with the same type of machine, indicate not only the capabilities of the Bristol military biplanes, but the splendid qualities of the British and Colonial Aeroplane Company's staff.

## A Memorial to the Late Hon. C. S. Rolls.

MR. WALTER EMDEN, late Mayor of Dover, under whose régime the fund to place a memorial to the late Hon. C. S. Rolls at Dover was initiated, has asked us to draw attention to the fact that the subscription list will shortly be closed with a view to ascertaining the amount subscribed and making arrangements for the erection of the memorial. The site for this will be on the sea-front, and the

memorial will face towards Calais, to and from which the memorable flight of Mr. Rolls was made. A model of the proposed memorial, which has been designed by Lady Scott, wife of the Antarctic explorer, will be exhibited on and after May 1st at the Oxford Street showrooms of Messrs. Selfridge and Co., Ltd. Subscriptions may be sent to the Secretary of the Aerial League, Carlton House, Regent Street, W.

## A Howard Wright in New Zealand.

A DESPATCH from Auckland, New Zealand, tells of a successful flight made at Papakura with a Howard Wright biplane, which was sent out in parts and built in New Zealand by Mr. Leo Walsh and his brother. After a few mornings spent in rolling practice, a message was sent to the Prime Minister, Sir Joseph Ward, who on February 10th visited Papakura and christened the aeroplane "Manurewa," which stands for flying bird in the Maori language. After an inspection of the machine Mr. V. Walsh took the pilot's seat, and after a short run along the ground rose to a height of 20 ft. and was in the air for about 300 to 400 yds., landing well at the end of it, although owing to the smallness of the ground some slight damage by contact with a fence has to be recorded.

## An Aeroplane for the Antarctic.

ALTHOUGH when Captain Scott was making arrangements for his expedition to the Antarctic regions he felt that aeroplanes were not sufficiently advanced for him to make use of them, good progress has been made since then, and Dr. Douglas Mawson, in making active preparations to lead the Australian Antarctic Expedition at the end of this year, is seriously considering the question of including an aeroplane as part of his equipment. With this in his mind he spent some time at the recent Exhibition at Olympia examining the various machines, and was especially interested in the two-seater Blériot of the military type.

# FOREIGN AVIATION NEWS.

## Eight Fly for an Hour and a Half.

TO his many extraordinary exploits in connection with passenger carrying, M. Sommer added another on the 30th ult., when accompanied by seven passengers on his biplane he flew at his aerodrome at Douzy for 1½ hours. The biplane was fitted with a 70-h.p. Gnome engine, and the useful load carried was 454 kilograms.

## Wynmalen Flies from Chalons to Issy.

ACCOMPANIED by his mechanic, Wynmalen on the 28th ult. set out from Chalons a few minutes before two on his Henry Farman biplane with the intention of going to Issy. On the way he was caught in a heavy rainstorm, which necessitated coming down at Cezanne; but as soon as the weather cleared they were off again, and safely landed at Issy at 5 p.m. It is interesting to note that Wynmalen carried 110 litres of petrol and 40 litres of oil on board the machine, besides a large quantity of spare parts, &c., which would have enabled him to repair his machine *en route* should it have been necessary.

## Prince de Nissole Has a Mishap.

WHILE flying with a passenger, M. Sarrier, at Etampes on Saturday last, the Prince de Nissole met with a curious accident. He was at a height of some 24 metres when a piece of indiarubber fixing the barograph broke and flew into the passenger's face. The latter instinctively ducked, and in doing so overbalanced the aeroplane, which fell to the ground. The Prince de Nissole escaped with only slight injuries while M. Sarrier sustained a broken arm, but according to latest reports is making favourable progress.

## Doings at Issy.

APART from the large number of pupils who have been seen at Issy lately, Wynmalen on his Farman machine was carrying several passengers on Saturday last, while Colliex has been giving instruction to Prince Bibesco on the Voisin "Canard." It will be remembered that the latter has ordered a machine of this type fitted with floats for flying over water, and it will soon be ready for delivery. On Saturday, too, Frey on his Morane monoplane made a series of demonstration flights before General Roques, who also saw Obre make some very good trials on his new monoplane.

## Henry Farman at Buc.

ON March 30th Mr. Henry Farman paid a visit to his brother's flying ground at Buc, and made several trial flights on a biplane of

the Maurice Farman type which has been built to take part in the military competition. He demonstrated his perfect control of the machine by making several sharp turnings, and by rising to a good height and descending by a *vol plané*. On the following day he was up for some distance across country.

## From Juvisy to Douai.

ON Sunday morning Bobba, accompanied by his friend Trotton, set out from Juvisy on his Goupy biplane with the intention of flying to Douai, making a stop at Senlis on the way. On arrival at the latter point, however, the thick mist then hanging over the ground determined the aviators to remain there until the following morning.

## Cross-Country Flying on a Hanriot.

ON Sunday afternoon Lafargue, after flying over Monpont-sur-l'Île on his Hanriot monoplane, steered across country to St. Medard de Guizieres, and after rounding the church spire there returned to his starting point. The flight, which was over a distance of about 36 kiloms., was ended by a very fine glide from a height of 300 metres.

## Practice at Douzy.

MOLLA, one of M. Sommer's most brilliant assistants at Douzy, is following in his master's footsteps as regards passenger carrying, and on the 31st ult. carried five passengers for a short trip. Kimmerling, who has been meeting with increased success on the Sommer monoplane, was flying for three-quarters of an hour on the 30th ult., while on the following day he was up for an hour and three-quarters.

## More Cross Channel Ventures.

SEVERAL French aviators have announced their intention of flying from Paris to London, among them being M. Legrand on a Breguet, while M. Pierre Marie Bonique still contemplates crossing on an R.E.P. The former left Douai on Friday, being accompanied by another pilot, M. Guedon. They landed at Beihune, 22 miles away, owing to motor troubles, and determined to stay the night there, instead of proceeding to Calais as originally intended. On Saturday they re-started on their way, but were compelled to land about 20 miles from Calais owing to motor trouble, and in the sudden landing one wing of the machine was broken, but the aviators escaped practically uninjured. M. Legrand has since announced his intention of abandoning his present attempt, and making a fresh start as soon as possible on a new machine.

**Bathiat Wins a Prize.**

ON Monday Bathiat on his Sommer monoplane succeeded in winning the "Prix du Plus Grand Vent" offered by M. A. Combe through the L.N.A. During a flight of five minutes the wind was observed to be blowing at a minimum of ten metres and a maximum of fifteen metres per second. The aviator was required to complete a kilometre course in the form of a figure eight, and although the wind made the performance a very trying one, he was successful in accomplishing it.

**The Paris-Madrid Race.**

FURTHER details have now been published regarding the proposal to organise an aeroplane race between the French and Spanish capitals, and the dates have been decided upon. The competitors are to fly over the first stage from Paris to Bordeaux on May 21st; they will continue on the second stage to San Sebastian or Vittoria on May 23rd, and complete the journey to Madrid on May 25th. The intervening days, May 22nd and 24th, are to be "rest" days.

**Austrian Passenger Record Beaten.**

ON Monday, Herr Illner on his Etrich monoplane succeeded in beating the Austrian passenger record. Taking Herr Amau as a

passenger he travelled round and round a circular course for 2 hrs. 33 mins., covering in that time about 150 kiloms.

**From Belgium to Germany.**

LEAVING the Kiewit aerodrome in Belgium on Monday, F. Lescarts, accompanied by M. Benselin, succeeded in flying to Aix-la-Chapelle. Kiewit was left at 5 o'clock, and passing over Maestricht and Limbourg the aviators came down at Vaals on the German frontier. They restarted almost immediately, and reaching Aix-la-Chapelle flew over the town, and landed on the old horse-race course of Braderheid at 6.35. The distance covered was about 90 kiloms.

**Cross-Country Flying in Havana.**

USING his Blériot monoplane, the French aviator Barrier on the 28th ult. succeeded in beating the time of the American aviator McCurdy for the cross-country flight from Columbia Camp to the Chateau Morro and back for a prize of £600 offered by the town of Havana. Barrier's time was 15 mins. 21½ secs., while McCurdy's time was 15 mins. 51½ secs. Garros has also been visiting Havana, and after taking several passengers for trips on the 28th he fell from a height of 20 metres, but fortunately escaped with slight injuries only.

## APRIL WEATHER, AS SHOWN BY A CENTURY'S RECORDS.

By T. F. MANNING.

WITH April the flying year may be said to begin, in so far as it is dependent on the major weather phenomena.

The improvement over March is very great in every respect, except hailstorms and thunderstorms, but the latter are so rare as to be of very little consequence.

Gales decrease to one half of the average number occurring in March. At the beginning of the month, however, they are still rather frequent, but towards the end of the second week they begin to diminish in frequency, and the last week of April, taking an average of a hundred years, is one of the least stormy weeks in the year. From the accompanying table it may be seen that while thirty gales are recorded for the first five days of April, only nine occurred during the last five days.

But unfortunately we must expect greater frequency of east and north-east winds than even in March, and, although storms decrease, there are fewer dead calm days in April than in any other month of the year. April, June, and May are, in order, the three months with the least number of calm days.

Fogs, also, show a great reduction in number, and dense fogs in particular become exceedingly rare.

Snowfalls average little more than one-third of those in March, and by the last week they very nearly approach a total disappearance.

Though not very much worse than March, April is the worst month for hailstorms. In these two months nearly one-half of all the hailstorms of the year are registered.

As to rainfall, April has the third smallest amount, coming after February and March. This is at Greenwich, and taking the average of many years.

In the matter of rainy days (that is days on which one-tenth of an inch, or more, is registered), April, contrary to the general belief, is the second best month of the year.

Thunder is still infrequent, but at the end of April it begins to make some headway towards the July maximum.

The improvement of the weather in this month compared with March may be best realised by setting the records side by side. The number of events are the average number occurring during a period of ten years:—

	March.	April.
Ten years' gales ... ..	23	12
" snowfalls ... ..	32	12
" fogs ... ..	27	15
" dense fogs ... ..	4	1½
" hailstorms ... ..	13	15
" thunderstorms ... ..	2	7
Hours of sunshine during the month (at Greenwich)	106	149
Rainy days in the month ... ..	13	12

With the increase of sunshine comes a considerable improvement in the matter of cloud. April averages only 8½ extremely cloudy days, against 10½ in March, while it has nearly 5 days of little or no cloud compared with 3½ in March.

Another of the regularly recurring cold periods is due on April 11th or 12th, and it should last till the 14th or 15th.

As in previous articles a table of daily weather events for a period of one hundred years is appended. This, it may be repeated, is the proportion of events for a hundred years calculated from actual records, for a longer period in the case of some of the phenomena, and for a slightly shorter period in the case of others. The odds against any event occurring on a given day are as 100 to the figure in the table; that is, of course, if this year's weather resembles the average. A comparison of the last with the first week shows the great improvement taking place in April:—

Day.	Gales.	Fogs.	Dense Fogs.	Snow-falls.	Hail.	Thunder.
1 ... ..	7	11	1	8	5	1
2 ... ..	8	5	—	7	4	2
3 ... ..	7	6	—	5	8	3
4 ... ..	5	3	1	3	5	3
5 ... ..	3	7	1	2	7	2
6 ... ..	4	7	1	2	2	2
7 ... ..	5	8	—	1	2	1
1st week ... ..	39	47	4	28	33	14
8 ... ..	4	6	—	3	7	2
9 ... ..	4	2	1	4	5	2
10 ... ..	2	2	—	5	5	3
11 ... ..	7	8	1	7	6	3
12 ... ..	2	8	—	7	10	4
13 ... ..	2	2	—	4	3	2
14 ... ..	5	6	1	7	2	1
2nd week ... ..	26	34	3	37	38	17
15 ... ..	3	4	1	5	3	2
16 ... ..	7	5	1	7	4	3
17 ... ..	4	6	—	4	6	2
18 ... ..	4	4	—	6	3	3
19 ... ..	2	5	1	3	6	4
20 ... ..	4	5	—	5	5	1
21 ... ..	5	7	1	4	1	—
3rd week ... ..	29	36	4	34	28	15
22 ... ..	4	1	1	2	5	2
23 ... ..	5	2	—	1	6	4
24 ... ..	5	6	1	4	8	1
25 ... ..	4	5	—	2	2	4
26 ... ..	2	2	—	2	7	3
27 ... ..	2	5	1	2	6	2
28 ... ..	3	4	1	1	6	3
4th week ... ..	25	25	4	14	40	19
29 ... ..	1	3	1	3	4	2
30 ... ..	1	6	1	—	5	6

## PROBLEMS RELATING TO AIRCRAFT.

By MERVYN O'GORMAN.

(Continued from page 300.)

51. To Find the Equation when we have the Curve in Practice.—The under curves of the De Havilland (1910), Farman (1910), and Blériot (1908), aerofoils were obtained by setting a straight edge below them—that is, on the concave side—and measuring the distance between the plane and the straight edge at various distances from the front.

The figures so obtained were plotted, and curves drawn out to represent the respective aerofoils (Fig. 15).

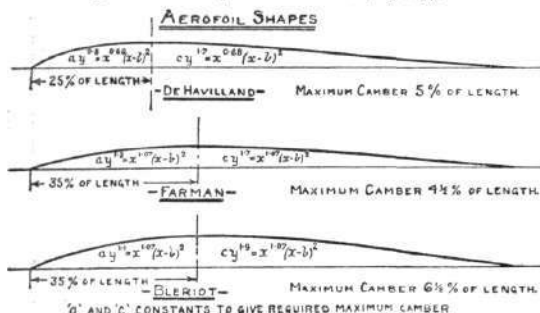


Fig. 15.—Giving an analytical comparison between the curves of three aeroplanes with the object of making kindred curves for research purposes.

Assuming that the equation to the heads and tails could be represented by the equation of form A and form B respectively, the position of the maximum camber was found, and the exponent  $n$  found from the law of Equation C, namely,  $\rho = 33.33n^{1.70}$ , where  $\rho$  = percentage of length of aerofoil of maximum camber from the front.

52. In the De Havilland  $n = 0.68$ , while in the Farman and Blériot  $n = 1.07$ .

Having the equations with two unknowns,  $a$  and  $m$ , two points were taken on each head and tail curve as measured on the machine and values of  $a$  and  $m$  worked out for these two points. A number of points were then worked out from these equations, to see if the equation did accurately represent the curve.

53. The equations eventually found were as follows —  
De Havilland.

$$\text{Head. } ay^{0.68} = x^{1.06} (x-b)^2,$$

$$\text{Tail. } cy^{1.7} = x^{0.68} (x-b)^2.$$

54. Farman.

$$\text{Head. } ay^{1.07} = x^{1.07} (x-b)^2,$$

$$\text{Tail. } cy^{1.7} = x^{1.07} (x-b)^2.$$

55. Blériot.

$$\text{Head. } ay^{1.07} = x^{1.07} (x-b)^2,$$

$$\text{Tail. } cy^{1.9} = x^{1.07} (x-b)^2.$$

For the above the numerical values of the various constants in inches were—

	De Havilland.	Farman.	Blériot.
a. ....	69.5	183.2	97.05
b. ....	6 ins.	6 ins.	6 ins.
c. ....	214.3	355.6	193.6

I have not thought it worth while to load this paper with the very large series of diagrams so produced, since anyone can reproduce them from the equations. They are, however, shown on the lecture table, and are in use for a research on curved planes.

56.—Diminishing the Power or Increasing the Speed.—If we can seriously reduce all resistances this would have two effects—(a) on the one hand such a diminution would mean a saving of power; then the economy in weight would seriously react upon sail area, and so a redoubled economy of resistance and power would result. This would tend towards the evolution of the fine weather pleasure flyer—the canoe of the air. (b) On the other hand the serious machine for war and business would gain in speed, and hence march along what many consider to be the straight and serious road to stability.

57. Speed and Stability.—The future of aeroplane flight is in some ways wrapped up with the question of fast

flying. Many of us believe that the difficulty of landing at high speeds on prepared landing places can with certainty be overcome, and if so this gives great promise of a solution of all difficulties in regard to stability.

Landing Places.—The success which is being achieved in the formation of an association in France under M. Balsan for the establishment of landing areas near all large towns, under provincial aero clubs and municipalities, with petrol and repair materials available, is the forerunner of what will be done in this country some twenty years hence; that is to say, we shall then form ports for the aerial ships, and these (as T. C. Farman points out in *Blackwood* for February) will be not only self-supporting but remunerative on the basis of port dues, as once there are serious landing places fast flying for business becomes practicable.

58. Fast Flying and Slow Alighting.—That speed is the boldest path and also the straightest short cut past the many difficulties in regard to stability, is proved by the behaviour of models. A well-made model may be dropped in any direction, backwards, forwards, or sideways, after being supported from any part of its being, yet it will within a reasonable height recover its proper position and finish at the ground in a gliding flight, glancing along the floor without shock. Why is this not repeated every day on the full-sized machine? The answer is that it would be repeated if the two essential conditions were the same, viz. :—

(a) If the travelling speed were proportional to the size, i.e., the proportional speed of a model is proportional to the square root of the scale to which it is made.

(b) If the alighting ground were analogous to the parquet floor on which the model alights, and where it meets with no obstructions to bump, deform, or suddenly stop it.

An example of (d) is the Ding model of 2 ft. span; if we take it as gliding at 16 m.p.h.—the full size analogue of 40 ft. span must glide at  $16 \times \sqrt{20}$  m.p.h. = nearly 72 m.p.h.

59. It is a question whether the "70 miles-an-hour aeroplane" can be arranged so as to approach the ground at much less than 70 m.p.h. Knowing as we do that by increasing the spread of the wings, we can cause an aeroplane to be self-supporting at lower speeds, and desiring that all landings shall be effected slowly, we are tempted to ask for a mechanical means of increasing wing area at will. It is well known that one (if not two) of the largest constructors of aeroplanes is in fact evolving something of the kind. The doubt, however, arises whether the attempt to alight slowly will not re-introduce the very dangers we wish to avoid; for not only are winds more likely to be gusty near the ground, but their fluctuations are greater. In fine, the very occasion on which high speed is required of an aeroplane—if high speed be the defence against upsets due to irregularities in the air currents—is precisely when it is either alighting or rising within the lower 500 feet. By a purely fortuitous circumstance—the automobile-bred instinct for racing with machines—speed is likely to be largely developed under the influence of the many valuable prizes offered for achievement in this direction. As regards risks, it is to be observed that such races as are run on pre-appointed days may be regarded as involving very much greater risks than competitions for a record of speed, which may be run by notifying the Royal Aero Club at any time, because in the former case all a man's pride is effective to make him start and show his mettle before the crowds of onlookers and competitors, however dangerous the day.

It is thanks to these inducements that in the past, speeds at which no racing motorist would allow his car to bump on to anything, have been found safe for alighting on the earth, namely, up to 50 m.p.h. Later on practical proofs as to whether really high speeds are substantially the safer will be obtained, I hope without loss of life or limb. All praise and credit to the men who are thus forwarding the science! Let us hope that the sentimentality of the people who know nothing about what may make for safety, may not overwhelm these practical scientists with ignominy before their work is done. Whether or not our aviators and their patrons are thus attacked, it is unlikely that they will either try, or, if they tried, whether they will succeed, in putting their point of view before the "know-alls" in their armchairs,

(To be concluded.)



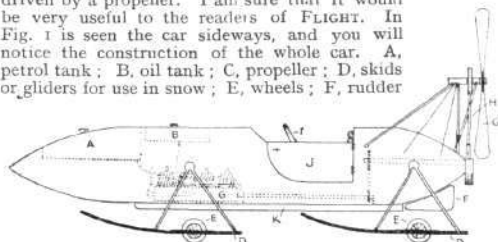
## CORRESPONDENCE.

\*. The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

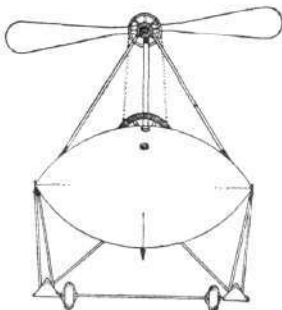
Correspondents communicating with regard to letters which they have read in FLIGHT, would much facilitate ready reference by quoting the number of each such letter.

## An Aerocar.

[1131] I send a sketch of my invention, which I call the Aerocar. The reason for calling it the Aerocar is that it is driven by a propeller. I am sure that it would be very useful to the readers of FLIGHT. In Fig. 1 is seen the car sideways, and you will notice the construction of the whole car. A, petrol tank; B, oil tank; C, propeller; D, skids or gliders for use in snow; E, wheels; F, rudder



SIDE ELEVATION



FRONT ELEVATION

for use when in water; G, engine; H, chain to propeller; I, control wheel; J, water-tight door; K, keel.

I trust you will find room for the idea in your paper.

Copenhagen.

ORESTE TOGNARELLI.

## Wave Motion.

[1132] I thank you very much for publishing my letter (No. 973), and now have some hesitation in again asking the hospitality of your pages for the enclosed communication. As, however, this is really a continuation of my letters 847 and 973, I trust you will at your convenience extend to me this further courtesy. The communication is a copy of one I sent to the Advisory Committee for Aeronautics on December 7th last, and I have intended for some time to send it to you—without request for its publication—as I thought

May I add that I am not sending this apropos of your valued article in a recent issue, and you will probably already have surmised that my only object has been to put my theories on record, your article, "Can we fly faster for less power," and your courtesy giving me the opportunity.

E. MEDÉN.

[Enclosure.]

Leeds, December 7th, 1910.

*Wave-motion as a Solution of Aerodynamic Support Problem.* ONE phase of this problem, that of the power expenditure, has been dealt with in my letters to FLIGHT (Nos. 847 and 973) in the issues of October 29th and December 24th last. I will now attempt to deal with its second phase—the pressure reaction upon curved planes—and suggest the nature of its solution from the point of view of a wave-motion.

As a problem, the pressure reaction upon a curved plane resolves itself at present into a determination of the mass of air that is at the moment active upon the plane! Heretofore, for want of a proper theory it has been generally assumed that the mass is a function of the width of the plane, and this supposition has, I think, been based upon experiments with superposed planes, and is apparently supported in the steam turbine theory, where in any one wheel the best efficiency is found when the spacing of the buckets is equal to their width. That this hypothesis is not correct, and that the mass of air engaged is essentially a function of  $v \cdot \text{tug } \beta$  (see sketch) seems the logical conclusion of an adoption of the wave theory.

The wave produced by a curved plane I think will have nothing in common with the surface waves of the sea, but will in nature be an elastic swinging of a true line-curve,

where  $\gamma$  might be equal to  $\frac{(v \cdot \text{tug } \beta)^2}{2\sigma_2}$  and the limit to the wave

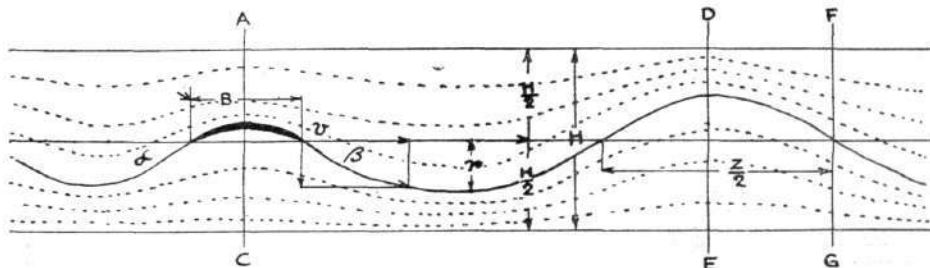
on each side of the centre line,  $\frac{H}{2}$ , equal to  $\frac{(v \cdot \text{tug } \beta)^2}{\sigma_1}$ .

However, whatever the mathematical solution might be found to be, it is evident that the wave is limited to a certain depth  $H$ , as indicated, and that the transmission of the support of the plane to the earth's surface is in nature similar to the launching of a ship into the sea, where the rise in level distributes the pressure over the whole surface covered by the water. Whatever dimensions  $H$  assumes, it will always be a function of  $v \cdot \text{tug } \beta$ , and represent the thickness of the stratum of air actually engaged for the support of the plane.

That this mass of air is independent of the width,  $B$ , of the plane will be evident if we assume the extremes of an infinitely narrow  $B$ , and a maximum  $B = \frac{L}{2}$  i.e., half the

wave length, which would not alter  $v \cdot \text{tug } \beta$ , and, therefore, not affect the size of the wave. The width,  $B$ , on the other hand, must, like the mass of air engaged, be a function of  $v \cdot \text{tug } \beta$ , and,  $B$ , of maximum efficiency (conceivably equal to  $\gamma$ ) must lie between the above extremes of  $B$ , as with

$B = \frac{L}{2}$ , aerodynamic support through horizontal motion ceases, and an infinitely narrow plane would represent maxi-



it might personally interest you! As my theory, however, apparently seems to have been of no interest to the members of the above Committee, I have so far altered my mind as to ask you for space for its publication!

mum support, which is unthinkable.

On the sketch I have indicated the probable pressure distribution through the wave, ignoring the difference in atmospheric pressure through the depth,  $H$ .

## MODELS.

### Aeroplane Design.

[1133] I should be greatly obliged if you would allow me the use of your very valuable space to enable me to ask your readers their opinions with regard to the following questions.

The first is, what is the advantage of the long fuselage over a short one or *vice versa*. I have an idea that a long one tends to make a model more stable longitudinally, owing to there being more length to correct fore and aft oscillations. Possibly I may be labouring under a false impression, in any case I am open to criticism.

The next question I have to ask is, is there a special rule for the proportion of the small plane to the main-plane with regard to length, that is to say, if I construct say a plane 14 ins. long, what ratio should the length of the leading plane be, in the case of tail-first model, the aspect ratio being full 7 to 1?

Having already written at greater length than I at first intended, I should like in closing to thank Mr. Bath (letter No. 607) for his recipe for paste, which is very good and I find that it keeps well. I also thank Mr. Neve for his letter re paper gliders, which are very satisfactory. Mr. Grimmer's article in your issue of December 31st re School Aero Clubs, I think is excellent.

Stony Stratford.

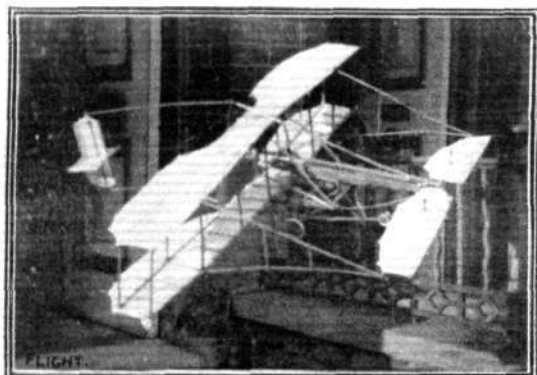
O. HAMILTON.

[Will our correspondent kindly use span or chord instead of the term length when referring to planes.—Ed.]

### Model Cody.

[1134] I have pleasure in sending you a photo of a model of Mr. Cody's biplane which I have made and flown. I have to thank your paper for some of the chief dimensions.

The machine is built of split cane joined with thread and



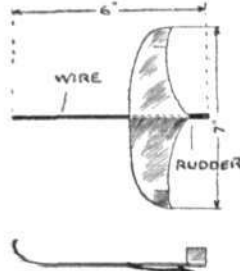
braced with wire. I am experiencing some trouble with the motor. I cannot get the elastic to hold for any length of time. Perhaps one of your readers would be good enough to give some advice.

Westcliff-on-Sea.

RIVERS SHERMAN.

### A Tailless Paper Glider.

[1135] I am enclosing you a sketch of a tailless paper glider which I find is a very speedy and steady kind. One peculiarity in it is that the plane is set at an inverted dihedral angle, with aerocurved tips on the extremities of the plane.



This can be made out of a sheet of note-paper and some flower-wire.

This model has travelled a considerable distance on a perfectly even keel.

The steering is brought about by a small rudder behind. The planes have slightly an inverted aerocurve, but the tips are brought down a little.

Thames Ditton.

C. B. RIDLEY.

### Models.

[1136] Could you please answer me through the medium of your correspondence columns the following questions:—

(1) The meaning of "bis" as in Santos-Dumont bis.

(2) The best propellers to use for a "racing" model of span 30-in.

(3) Would strip or square rubber be best for the above?  
Guildford.

A. T. SIMPSON.

[(1) The French use "bis" with a numeral as 2 bis, in the sense that we should employ a letter of the alphabet for the same suffix, e.g., 2a. In general it may be said to imply a redesigned model.

(2) Can only be obtained by trial.

(3) Square is generally preferable.—Ed.]



### PUBLICATIONS RECEIVED.

*Solar Eclipse Expedition to Port Davey, Tasmania, May, 1910.*  
By F. K. McClean, F.R.A.S., and others. London: Richard Clay and Sons, Ltd., Bread Street Hill, E.C.

### Catalogues.

"The Coventry" Noiseless Chains and Wheels. The Coventry Chain Co., Ltd., Coventry.

"The Aeroplane and Everything for it." Aeroplane Supply Co., Ltd., 110-111, Piccadilly, W.

*Farman Aeroplanes.* Aeroplane Supply Co., Ltd., 110-111, Piccadilly, W.

*Sanders Aeroplanes.* The Sanders Aeroplane Co., 62, Strand, W.C



### Aeronautical Patents Published.

Applied for in 1910.

Published April 6th, 1911.

3,374.	J. A. DE MESTRE.	Aerial machines.
6,051.	S. L. WALKDEN.	Aeroplanes.
6,368.	E. LOSSE.	Aerial machines.
6,959.	J. BARCLAY.	Flying machines.
9,503.	L. ARNHEITER.	Airships.
24,400.	J. VON KORWIN.	Aeroplanes.



### DIARY OF COMING EVENTS.

#### British General Events.

July 1	..	Gordon-Bennett Aviation Cup Contest.
July 22-Aug. 5	..	Daily Mail Round England Contest.
Oct. 31	..	Close of British Michelin Cup.

#### Foreign Fixtures.

April 9-21	..	German Circuit—Ulm, Frankfurt, Friburg, Strasburg, Carlsruhe, Mannheim, Wiesbaden (1916).
April 16	..	Dresden Meeting.



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